TUGAS AKHIR – MO 141326

ANALISIS UMUR KELELAHAN SISA PADA YYA *PLATFORM* MENGGUNAKAN METODE MEKANIKA KEPECAHAN

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DEPARTEMEN TEKNIK KELAUTAN

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ANALYSIS OF RESIDUAL FATIGUE LIFE ON YYA PLATFORM USING OF FRACTURE MECHANIC METHODS

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TUGAS AKHIR

Diajukan untuk Memenuhi Salah Satu Persyaratan Memperoleh Gelar Sarjana Teknik
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Surabaya, Januari 2018

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ANALISIS UMUR KELELAHAN SISA PADA YYA *PLATFORM* MENGGUNAKAN METODE MEKANIKA KEPECAHAN

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ABSTRAK

Bangunan lepas pantai terpancang adalah bangunan yang sangat penting bagi kegiatan eksploitasi dan eksplorasi minyak dan gas. Bangunan ini haruslah memiliki tingkat keamaan yang dinyatakan layak untuk menunjang kegiatan tersebut. Kegagalan struktur akibat mengalami kelelahan tidak dapat diabaikan. Biasanya struktur yang sudah beroperasi cukup lama akan mengalami penurunan umur kelelahan. Oleh karena itu diperlukan analisa berkala terhadap *fatigue life*. Pada tugas akhir ini akan menganalisa umur kelelahan pada YYA *Platform* milik PT. Pertamina Hulu Energi *Offshore North West Java* dengan menggunakan metode *cummulative damage* dan *fracture mechanic* serta memberikan mitigasi yang mungkin dilakukan pada struktur untuk memperpanjang umur kelelahannya. Pada metode *cummulative damage* akan didapatkan umur kelelahan terpendek pada *tubular joint* struktur dan dilakukan analisa lokal dan penambahan *crack* menggunakan metode *fracture mechanic* terhadap *tubular joint* yang memiliki umur kelelahan terpendek. Hasil dari analisa ini didapatkan bahwa pada *tubular joint* P118 memiliki umur kelelahan terpendek yaitu 233 tahun. *Tubular joint* P118 selanjutnya dianalisa menggunakan metode *fracture mechanic* dengan memberikan *crack* sebesar a = 0.5 mm, $^{a}/_{2c}$= 0.15 dan didapatkan umur kelelahannya yaitu 174 tahun. Selisih umur kelelahan dari kedua metode ini adalah 59 tahun. Mitigasi yang didapat digunakan untuk menambah umur kelelahan adalah dengan memberikan *joint clamps* pada sambungan tubular tersebut. Hasil dari analisa menggunakan *joint clamps* dapat menambahkan umur lelah. Kesimpulan dari tugas akhir ini adalah retak dapat mengurangi umur kelelahan secara signifikan sehingga perlu dilakukan mitigasi dengan metode *joint clamps* yang dapat meningkatkan umur lelahan struktur.

Kata kunci: *residual fatigue life, cummulative damage, fracture mechanic, crack, joint clamps*

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ANALYSIS OF RESIDUAL FATIGUIE LIFE ON YYA-PLATFORM USING OF FRACTURE MECHANIC METHODS

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ABSTRACT

Offshore structures are important buildings for oil and gas exploitation and exploration activities. This building must have a level of equality that is declared eligible to support the activity. Structural failure due to fatigue can't be ignored. Usually the structure that has been operating long enough will decrease fatigue life. Therefore, periodic analysis of fatigue life is required. In this final project will analyze fatigue life at YYA Platform owned by PT. Pertamina Hulu Energi Offshore North West Java by using method of cumulative damage and fracture mechanic and provide possible mitigation on the structure to extend fatigue life. In the method of cumulative damage will get the shortest fatigue life on tubular joint structure and local analysis and the addition of crack using fracture mechanic method of tubular joint that has the shortest fatigue life. The result of this analysis found that tubular joint P118 has the shortest fatigue life of 233 years. Tubular joint P118 is then analyzed using fracture mechanic method by giving crack equal to a = 0.5 mm, $^{a}/_{2c}$ = 0.15 and obtained fatigue life of 174 years. The difference in fatigue life of both method is 59 years. Mitigation gained is used to increase fatigue life by providing joint clamps on the tubular joint. The results of the analysis using joint clamps can add fatigue life. The conclusion of this final project is that crack can reduce fatigue life significantly so it is necessary to do mitigation with joint clamps method which can increase the fatigue life of the structure.

Key words: *residual fatigue life, cumulative damage, fracture mechanic, crack, joint clamps*

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Tujuan dari pembuatan tugas akhir ini adalah memenuhi persyaratan dalam menyelesaikan Studi Kesarjanaan (S-1) di Departemen Teknik Kelautan, Fakultas Teknologi Kelautan (FTK), Institut Teknologi Sepuluh Nopember Surabaya (ITS). Tugas akhir ini merupakan karya tulis terbaik yang dapat penulis persembahkan selama berkuliah di Departemen Teknik Kelautan ITS. Akan tetapi, dengan kerendahan hati bahwa penulis merupakan manusia yang sering melakukan kesalahan, maka saran dan kritik penulis harapkan untuk menyempurnakan laporan tugas akhir dari ahli pada bidangnya.

Penulis berharap laporan ini bermanfaat bagi perkembangan teknologi di bidang rekayasa kelautan, bagi pembaca umumnya, dan peneliti selanjutnya pada khususnya.

Surabaya, 4 Januari 2018

Penulis

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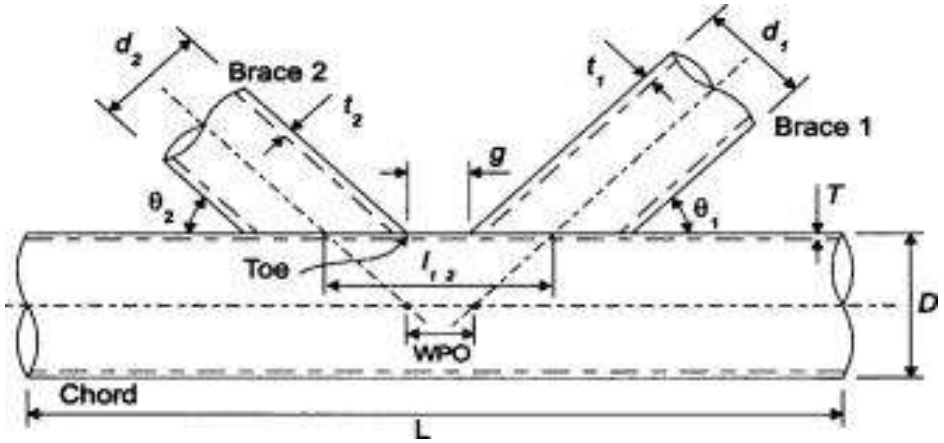
BAB I
PENDAHULUAN

1.1 Latar Belakang

Pada dunia minyak dan gas satu hal yang tidak dapat dilupakan adalah bangunan yang menunjang proses eksploitasi minyak dan gas. Bangunan yang digunakan adalah bangunan khusus yang memiliki *design* menunjang kegiatan tersebut. Pada kegiatan minyak dan gas dilepas pantai bangunan tersebut disebut *offshore structure*. Bangunan ini haruslah mampu menahan beban statis dan dinamis.

Beban statis adalah beban yang miliki nilai yang tetap, baik secara intensitas, titik kerja, dan arah garis kerja. Sedangkan beban dinamis adalah beban yang memiliki nilai, arah, dan jumlah yang berbeda. Beban ini dapat juga mengakibatkan beban siklik atau beban secara berulang yang diberikan terhadap struktur. Beban yang ditahan oleh struktur akan menyebabkan kelelahan pada pada struktur tersebut sehingga dapat diketahui umur kelelahan struktur tersebut. Hal ini perlu dilakukan karena mengingat kegagalan akibat *fatigue damage* mencapai 90%. *Fatigue* biasanya menyerang bagian sambungan pada *jacket platform* yang untuk menyambungkan satu bagian dengan yang lain menggunakan teknologi pengelasan. Akibat dari teknologi pengelasan ini adalah dapat memunculkan retak awal/ *initial crack*. Retak awal yang diakibatkan beban berulang-ulang ini menjadi indikasi awal kegagalan mekanika kepecahan sehingga struktur menjadi *fail*.

Pada sambungan tubular menurut API WSD 2 1th *Edition* tersusun atas *brace* dan *chord* dengan konfigurasi sebagaimana Gambar 1.1 berikut:



***Gambar 1.1 Klasifikasi pada* tubular joint**

Pada *tubular joint* terkena pembebanan, baik statis maupun dinamis secara terus menerus mengakibatkan adanya konsentrasi tegangan. Akibat beban

tersebut struktur mengalami keretakan dan seiring berjalannya waktu akan terjadi perambatan retak dan kekuatan struktur akan berkurang. Kekuatan ini akan terus berkurang hingga kondisi dimana tubular tidak mampu menerima *crack* yang terjadi. Hal ini sangat penting untuk diperhatikan karena akan berpengaruh pada umur dari struktur. Ada beberapa metode pendekatan dalam menentukan umur kelelahan, yaitu *cumulative damage (S-N curve, probabilistic,* Palgren-Milner's *Rule*) dan *fracture mechanics*. (Satria, 2016)

Rancangan Tugas Akhir ini akan menggunakan *platform* milik PT. Pertamina Hulu Energi *Offshore North West Java* (PHE ONWJ). Karakteristik *platform* milik PHE ONWJ adalah 90% *platform* berusia lebih dari 20 tahun sehingga dapat dikategorikan *platform* 'tua'. Banyak masalah yang akan timbul dari *platform* berusia lanjut seperti mengalami kelelahan. *Platform* yang sudah lama di-*install* tentunya harus dilakukan perawatan dengan baik agar struktur masih tetap beroperasi.

Pada proposal rancangan Tugas Akhir (P1), penulis akan menggunakan metode *fracture mechanics* untuk menentukan umur kelelahan pada *plaftom* milik PHE ONWJ. Metode ini sendiri dibagi menjadi dua yaitu *Linear Elastic Fracture Mechanic* dan *Elastic Plastic Fracture Mechanic*. Penulis menggunakan metode *Linear Elastic Fracture Mechanic (LEFM)*. Diawali dengan analisa secara keseluruhan menggunakan SACS 5.7 V8i untuk mendapatkan letak *joint* yang memiliki umur kelelahan paling kecil. *Joint* yang memiliki umur kelelahan paling kecil akan dilakukan analisa lokal dengan menggunakan metode mekanika kepecahan/ *fracture mechanic*. Dengan konsep ini didapatkan besar *Stress Intensity Factor* dan besarnya perambatan retak yang nantinya akan digunakan untuk mengetahui umu struktur. Hasil perhitungan akan mendapatkan umur sisa kelelahan dari struktur tersebut sehingga akan diketahui perkiraan umur sisa struktur tersebut.

1.2 Rumusan Masalah

Permasalahan yang diangkat dalam tugas akhir ini adalah:

1. Berapa sisa umur kelelahan pada *tubular* menggunakan *cumulative damage*?
2. Berapa sisa umur kelelahan *tubular joint* menggunakan metode *fracture mechanic*?
3. Bagaimana cara untuk memperpanjang umur pada *tubular joint*?

1.3 Tujuan

Adapun tujuan yang dicapai dalam tugas akhir ini adalah:

1. Menghitung sisa umur kelelahan pada *tubular joint* dengan *cumulative damage*.
2. Menghitung sisa umur kelelahan *tubular joint* menggunakan metode *fracture mechanic*.
3. Melakukan tindakan tertentu agar sisa umur kelelahan *tubular joint* lebih panjang.

1.4 Manfaat

Manfaat yang dapat diambil dari pengerjaan tugas akhir ini adalah mengetahui sisa umur kelelahan dari *platform* serta mitigasi yang dapat dilakukan terhapat *platform* tersebut sehingga dapat memperpanjang umur dari *platform* tersebut akibat kelalahan.

1.5 Batasan Masalah

Agar memudahkan mencapai tujuan penulisan tugas akhir, penulis memfokuskan ruang lingkup dari permasalahan yang dijabarkan sebelumnya. Permasalahan akan dibatasi pada hal-hal berikut:

1. Bangunan laut yang dianalisa adalah *Platform* YYA milik PT. Pertamina Hulu Energi Offshore North West Java
2. Mode pembebanan dalam menentukan SIF menggunakan mode I
3. Analisis dilakukan pada daerah sambungan tubular (*local analysis*)
4. Jenis retakan yang digunakan adalah *semi-eliptical*
5. Setelah melakukan analisis menggunakan metode *fracture mechanic*, penulis melakukan analisis mitigasi dan mengitung umur kelelahan setelah dilakukan analisis menggunakan metode *cummulative damage*.

1.6 Sistematika Penulisan

Sistematika penulisan yang digunakan dalam tugas akhir ini sebagai berikut:

BAB 1 PENDAHULUAN

Dalam bab ini, penulis menjelaskan hal apa yang melatarbelakangi sehingga studi tentang *fracture mechanic* ini dilakukan, permasalahan yang dibahas, tujuan yang ingin penulis capai, manfaat yang akan diperoleh, batasan-batas masalah yang diterapkan, dan sistematika penulisan yang digunakan penulis dalam tugas akhir ini.

BAB 2 TINJAUAN PUSTAKA DAN DASAR TEORI

Selama proses pengerjaan dan penyelesaian tugas akhir ini, penulisa menggunakan dasar-dasar teori yang dapat menunjang keberhasilan dalam analisis, berbagai macam persamaan dan rumus, sehingga dalam bab ini akan dicantumkan hal-hal tersebut sebagai tinjauan pustaka.

BAB 3 METODOLOGI PENELITIAN

Bab ini lebih menguraikan tentang tahapan dan metode yang digunakan penulis untuk menyelesaikan tugas akhir ini.

BAB 4 ANALISIS DAN HASIL PEMBAHASAN

Pada bab ini, penulis membahas penyelesaian permasalahan yang diangkat dalam tugas akhir ini. Hal ini mencakup validasi, analisis, pengolahan, dan pembahasan data hasil dari *output running software*.

BAB 5 KESIMPULAN DAN SARAN

Pada bab ini, penulis menuliskan kesimpulan dari tugas akhir, hasil dari analisis, pembahasan yang dilakukan serta saran-saran yang perlu diberikan untuk penelitian selanjutnya dan jawaban dari permasalahan yang telah dirumuskan pada Bab I.

BAB II
TINJAUAN PUSTAKA DAN DASAR TEORI

2.1 Tinjauan Pustaka

Kelelahan Struktur akibat beban berulang merupakan salah satu keruntuhan yang harus diwaspadai oleh setiap *engineer*. Gaya yang bekerja pada tubular joint mengakibatkan kelelahan. Pada titik-titik tertentu sepanjang daerah perpotongan tersebut akan terjadi suatu tegangan yang besar beberapa kali lipat daripada tegangan nominalnya. (Yudha, 2017)

Mekanika kepecahan merupakan suatau analisis penyelesaian dengan cara mendefinisikan kondisi lokal dari tegangan dan regangan di sekitar retakan yang dikorelasikan dengan parameter-parameter global yang dapat menyebabkan retakan merambat. (Puspitorini, 2017).

Mengalanisa umur kelelahan dapat dilakukan dengan dua metode yaitu *cumulative damage* dan *fracture mechanic*. Pada metode *cumulative damage* akan dilakukan analisa secara global terhadap struktur. Pada metode *facture mechanic* adalah metode lanjutan dari *cumulative damage* yang dilakukan analisa secara lokal sehingga didapatkan hasil lebih akurat terhadap umur kelelahannya. Mekanika kepecahan yang digunakan adalah *linier elastic fracture mechanic* (LEFM). Parameter dari penggunakan LEFM adalah posisi dan bentuk dari retakan yang terjadi sehingga dapat dilakukan analisa tegangan sisa. (Annatasia, 2005).

2.2 Dasar Teori

2.2.1 *Offshore Structure*

Kegiatan *oil & gas* haruslah ditunjang dengan *structure* yang mendukung kegiatan eksplorasi atau eksploitasi bahan tambang di lepas pantai. Bangunan tersebut adalah *offshore structure*. Bangunan lepas pantai/ *offshore structure* adalah bangunan yang tidak memiliki akses yang pasti ke daratan dan harus berdiri kokoh di semua kondisi cuaca. (Chakrabarti 2005). Ciri-ciri anjungan lepas pantai adalah (Amri, 2008):

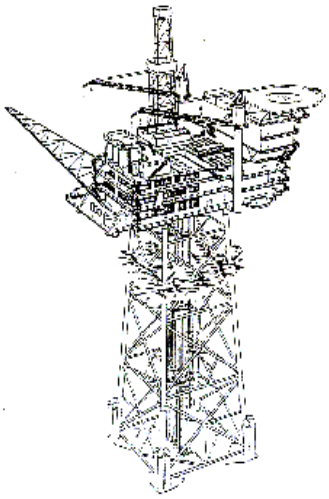
1. Struktur tidak dibangun langsung di lapangan tetapi komponen-komponennya dibuat di darat lalu kemudian diangkut dan dirakit langsung di lapangan
2. Beroperasi di daerah sekitar sumur minyak atau daerah pertambangan yang terbatas, tidak dapat beroperasi di daratan dan tidak dapat berpindah-pindah
3. Beroperasi di laut untuk periode waktu yang lama sehingga bangunan harus mampu bertahan dalam kondisi cuaca baik maupun kondisi cuaca buruk yang mungkin terjadi selama beroperasi.

Struktur bangunan lepas pantai memiliki banyak tipe yang dapat diklasifikasikan dengan berbagai cara, antara lain (Ricky L.T., 2007):

1. *Type of Operations*
   a. Bangunan yang digunakan untuk penambangan sebagai pengambil sumber daya tambang dibawah permukaan.
   b. Bangunan yang digunakan untuk pengambilan minyak dan atau gas.
   c. Struktur yang digunakan untuk pembangkit listrik tenaga *thermal*
2. *Type of Configuration*
   a. *Vessel Type Structure* adalah kapal laut yang dimodifikasi sehingga mempunyai sistem propulsi untuk dapat berbindah dan beroperasi di dalam laut.
   b. *Barge,* struktur tidak memiliki system propulsi sehingga agar dapat bergerak harusnya di *towing/* ditarik menggunakan kapal (*tugboat*)
   c. *Platform,* sebagaian besar dari struktur yang digunakan untuk eksplorasi atau eksploitasi minyak dan gas di laut dangkal atau laut menengah.
3. *Type of Functioning*
   a. *Exploration,* digunakan dalam kegiatan pengeboran untuk mengambil sumber daya yang ada
   b. *Production,* digunakan untuk mengolah sumber daya yang telah di eksplor sebelumnya menjadi bahan siap pakai
   c. *Hybrid,* bangunan ini adalah perpaduan fungsi dari eksplorasi dan produksi dimana pada struktur ini ada kedua kegiatan tersebut, eksplorasi dan produksi.
4. *Mobility*
   a. *Fixed Structure,* digunakan pada laut menengah kebawah dan bersifat *unmovable* karena bangunan ini terpancang di dasar perairan.
   b. *Floating Structure,* digunakan dalam kondisi laut dalam dan bersifat *movable* karena dapat berpindah-pindah sesuai kebutuhan eksplorasi dan eksplotasi.
      Compliant, digunakan dalam semua jenis kedalaman dan bangunan ini adalah perpaduan antara struktur terpancang dan terapung.

2.2.2 *Offshore Fixed Platform*

Bangunan terpancang lepas pantai adalah bangunan yang dibuat dari *concrete* dan atau baja pada kaki yang ditancapkan pada *seabed,* juga mendukung *deck* sebagai tempat peralatan untuk *drilling rigs,* fasilitas produksi dan tempat *crew*. Bangunan ini juga dikatakan tidak bergerak karena sudah terpancang pada *seabed,* dan didesign untuk waktu yang lama seperti pada Gambar 2.1 contoh bangunan lepas pantai terpancang.



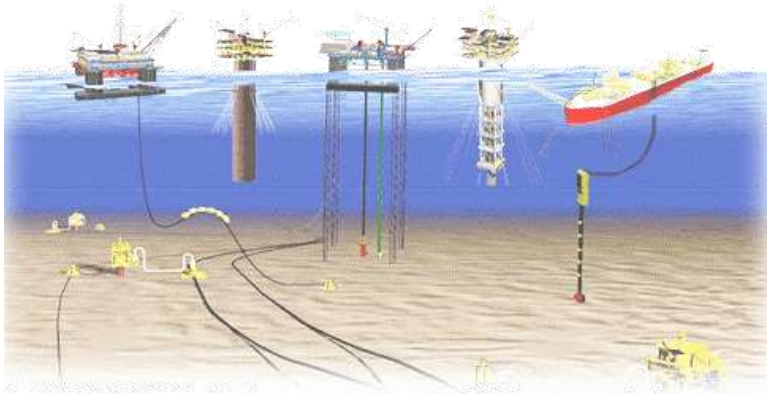
Gambar 2. 1 Anjungan Lepas Pantai (Fixed Platform)

Kriteria *fixed platform* dapat dibagi menjadi beberapa jenis tergantung kedalaman, kebutuhan, kondisi cuaca, dll. Pada umumnya bangunan terpancang lepas pantai dapat direalisasikan sampai kedalaman 1.700 feet (520 m), lebih dari pada itu akan cenderung menggunakan *floating platform*.

Bangunan terpancang lepas pantai, dapat juga dibedakan berdasarkan jumlah kakinya (*jacket*). Jumlah kaki *jacket* bervariasi tergantung kebutuhan untuk kegiatan pengeboran.

2.2.3 *Floating Offshore Platform*

Bangunan terapung lepas pantai adalah bangunan yang dibuat dengan kondisi terapung dan dilakukan *mooring* pada *platform* sehingga mengurangi defleksi dan pergerakan akibat gelombang laut, angin, dll. *Platform* ini cenderung digunakan di kedalaman >1.700 feet (520 m) dibawah permukaan laut. *Platform* ini lebih fleksibel dari pada *fixed* karena setelah proses pengeboran selesai, *platform* ini dapat dipindah (*tambat*) ketempat lain untuk melakukan pengeboran kembali. Namun, tentunya harga dari *platform* ini lebih mahal dari pada *fixed platform.* Gambar 2.2 merupakan contoh bangunan lepas pantai terapung.



Gambar 2. 2 Anjungan Terapung

2.2.4 *Fatigue Analysis*

Fatigue atau kelelahan adalah bentuk dari kegagalan yang terjadi pada struktur karena beban dinamik berfluktuasi dibawah *yield strength* yang terjadi dalam waktu yang lama dan berulang-ulang. *Fatigue* menduduki 90% penyebab utama kegagalan pemakaian. Terdapat 3 fase dalam perpatahan *fatigue*: permulaan retak, penyebaran retak, dan patah. Mekanisme dari permulaan retak umumnya dimulai dari crack initiation yang terjadi di permukaan material yang lemah atau daerah dimana terjadi konsentrasi tegangan di permukaan (goresan, lubang-pits, dll) akibat adanya pembebanan berulang. Selanjutnya adalah penyebaran ini berkembang menjadi *microcracks.* Perambatan ataupun perpaduan *microcracks* ini membentuk *macrocracks* yang akan berujung pada *failure*. Maka setelah itu, *material* akan mengalami apa yang dinamakan perpatahan. Perpatahan terjadi ketika *material* telah mengalami siklus tegangan dan regangan yang menghasilkan kerusakan yang permanen.

Suatu bagian dari benda dapat dikenakan berbagai macam kondisi pembebanan termasuk tegangan berfluktuasi, regangan berfluktuasi, temperature berfluktuasi, atau dalam kondisi lingkungan korosif atau temperatur tinggi. Kebanyakan kegagalan pemakaian terjadi sebagai akibat dari tegangan-tegangan tarik.

Awal proses terjadinya kelelahan (*fatigue*) adalah jika suatu benda menerima beban yang berulang makan akan terjadi slip. Ketika slip terjadi dan benda berada dipermukaan bebas maka sebagai salah satu langkah yang disebabkan oleh perpindahan logam sepanjang bidang slip. Ketika tegangan terbalik, slip yang terjadi dapat menjadi negative dari slip awal, secara sempurna akan mengesampingkan setiap efek deformasi. Deformasi ini ditekankan oleh pembebanan yang berulang, sampai suatu retak yang dapat terlihat akhirnya muncul retak mula-mula terbentuk sepanjang bidang slip.

Fatigue menyerupai *brittle farcture* yaitu ditandai dengan deformasi plastis yang sangat sedikit. Proses terjadinya *fatigue* ditandai dengan *crack* awal, *crack* propaganti dan *farcture* akhir. Permukaan *farcture* biasanya tegak lurus terhadap beban yang diberikan. Dua sifat makro dari kegagalan *fatigue* adalah tidak adanya deformasi plastis yang besar dan *farcture* yang menunjukan tanda-tanda berupa "*Beachmark"* atau "*clamshell"*. Tanda-tanda *macro fatigue* adalah tanda garis-garis pada permukaan yang hanya bisa dilihat oleh mikroskop electron.

Faktor-faktor yang mengurangi kekuatan *fatigue*:

1. **Beban Siklik**

Beban Siklik atau *cyclic load* adalah pembebanan berulang, seperti tekanan berulang yang teratur pada bagian tertentu, yang dapat menyebabkan kelelahan pada bagian tertentu. Beban siklik (bolak-balik) yang terus menerus akan terjadi

penurunan kapasitas daya tekan batang yang mencapai 50% dari kapasitas awalnya (Popov Egor, 1979).

2. **Geometri**

   Keadaan luas penampang pada suatu bagian tertentu dapat memicu kelelahan pada bagian tersebut. Konsentrasi *stress* akibat variasi bentuk geometri merupakan titik dimulainya *fatigue cracks*. Semakin rumit bentuk geometri, maka semakin tinggi tingkat kelelahannya.

3. **Kualitas Permukaan**

   Hal ini berhubungan dengan kondisi permukaan benda. Semakin kasar permukaan dapat menyebabkan konsentrasi *stress microscopic* yang menurunkan ketahanan *fatigue*.

4. **Tipe Material**

   Ketahanan terhadap *fatigue* suatu material berbeda-beda, contohnya komposit dan polimer memiliki *fatigue* yang berbeda dengan metal. Semakin bagus material maka akan semakin mahal pula harga yang ditawarkan.

5. **Lingkungan**

   Kondisi lingkungan sangat berpengaruh terhadap kekuatan *fatigue*. Lingkungan yang dapat menyebabkan korosi lebih cepat dapat menurunkan nilai kelelahan.

6. **Temperatur**

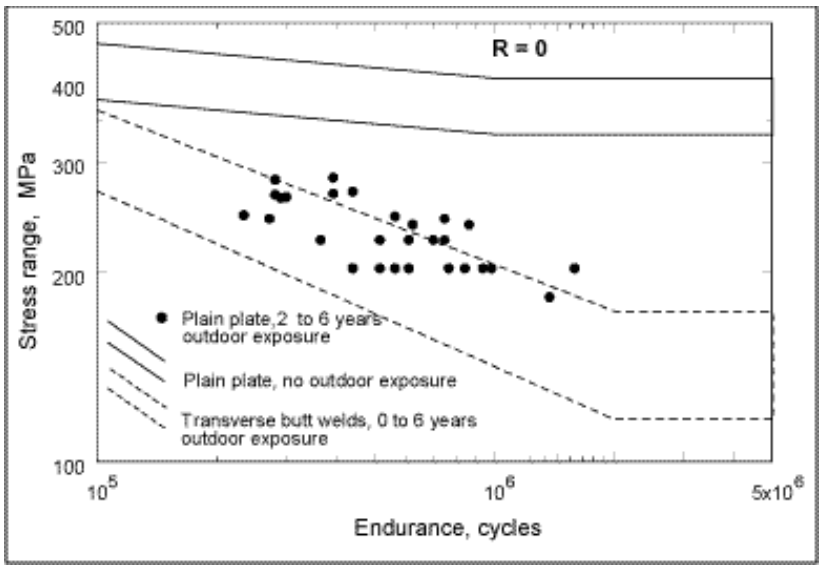
   Semakin tinggi temperature maka kekuatan *fatigue* akan menurun. Hal ini dapat terjadi karena material akan lebih cepat lelah akibat suhu yang tinggi.

Sacs adalah program yang dapat digunakan dalam memperhitungkan umur kelelahan suatu struktur. Menggunakan program tersebut dapat membantu memprediksi umur kelelahan struktur. Secara umum Sacs adalah suatu perangkat lunak (*software*) untuk analisa struktur baik struktur lepas pantai maupun struktur darat yang dikembangkan oleh Engineering Dynamics Inc. Kelebihan dari software ini adalah *user friendly* sehingga mudah untuk menjalankannya, seperti mempermudah dalam desain, memodelkan beban lingkungan seperti beban gelombang, arus, angina, marine growth, dan beban-beban lain. Selain itu, proses penganalisaanya lebih mudah seperti analisa statis (*in-place analysis*), analisa dinamis, *fatigue analysis* dan macam-macam output yang ingin ditampilkan berdasarkan *codes* yang dipakai. Pada program ini sangat diperlukan penggunaan S-N Curve sesuai *standard* tertentu.

2.2.5 Kurva S-N (S-N Curve)

Kurva ini mengambarkan karakteristik kelelahan dari suatu material yang mengalami tegangan berulang-ulang dengan besar yang sama. Kurva ini didapat dari hasil eksperimen yang telah dilakukan sebelumnya. Besarnya jumlah N berbanding terbalik dengan rentang tegangan S (tegangan maksimum – tegangan

minimum). Data kurva S-N dapat dilihat pada Gambar 2.3 yang digunakan adalah API RP2A.



Gambar 2. 3 Kurva S-N (API RP 2A WSD, 2000)

Secara rumus, persamaan yang ditunjukan oleh kurva ini adalah sebagai berikut:

$$N = 2\ x\ 10^6(\frac{\Delta\sigma}{\Delta\sigma_{ref}})^{-m} \quad (2.1)$$

dengan:

N = Jumlah Siklus Beban sampai Material Mengalami Kegagalan
$\Delta\sigma$ = Rentang Tegangan (Tegangan Maksimum – Tegangan Minimum)
$\Delta\sigma_{ref}$ = Rentang Tegangan pada Siklus 2 x 10^6

2.2.6 *Miner-Palmgren Rule*

Pada aturan ini memungkinkan perhitungan kerusakan akibat kelelahan dengan menggunakan perbedaan amplitudo. Secara matematis, persamaan dari rumus ini adalah sebagai berikut:

$$D = \sum_{i=1} = \sum \frac{n_i}{N_i} \quad (2.2)$$

dengan:

D = Damage Ratio / Rasio Kerusakan
n_i = Siklus Rentang Tegangan yang Bekerja pada Grup ke-i
N_i = Siklus Rentang Tegangan yang Diijinkan pada Grup ke-i

Kegagalan akan terjadi bisa nilai dari persamaan Plamgren-Miner lebih dari 1.

2.2.7 *Stress Concentration Factor* (SCF)

Faktor Konsentrasi Tegangan merupakan perbandingan antara tegangan *hot spot stress* dan tegangan nominal pada *brace* (Gibsten, 1987). Secara sistematis memiliki persamaan sebagai berikut:

$$S = S_{nominal}\ x\ SCF \quad (2.3)$$

dengan:

S = Tegangan Maksimum

$S_{nominal}$ = Tegangan Nominal

SCF = *Stress Concentration Factor*

Besarnya Faktor Konsentrasi Tegangan *(SCF)* untuk tiap sambungan akan berbeda tergantung pada geometrinya dan Faktor Konsentrasi Tegangan *(SCF)* ini merupakan parameter terhadap kekuatan sambungannya. Konsentrasi tegangan menggambarkan suatu kondisi dimana telah terjadi tegangan lokal yang tinggi akibat dari geometri sambungan tersebut, sehingga dibutuhkan keakuratan yang tinggi dalam penentuan nilai tegangan *hot spot* atau nilai Faktor Konsentrasi Tegangan *(SCF)* untuk jenis sambungan yang berbeda.

Sedangkan SCF digunakan untuk menggambarkan perbandingan antara tegangan sembarang titik di interseksi dengan tegangan nominal pada *brace* SCF_c dan SCF_b masing-masing juga merupakan fungsi dari tegangan nominal *brace*. Beberapa pendekatan empirik untuk menentukan besaran SCF pada *brace* dan *chord* telah dilakukan. Pada tugas akhir ini validasi *range* parameter SCF pada *multiplanar tubular joint* double K akan divalidasikan dengan *range* parameter SCF eftyimou pada simple K joint. Parameter SCF Eftyimou simple K joint.

2.2.8 Deterministic Method

Metode deterministik adalah metode umum digunakan karena sederhana, namun membutuhkan kapasistas komputasi yang tinggi mengingat kalkulasi yang dilakukan secara terus menerus. Mudahnya, metode ini menentukan rentang tegangan maksimum yang terjadi pada bangunan apabila berada pada satu gelombang regular dengan tinggi dan periode tertentu. Hal ini dilakukan untuk tinggi gelombang dan periode yang lainya, yang ada pada data persebaran gelombang.

Menggunakan metode ini didasari juga terhadap periode natural oleh struktur. Periode natural adalah periode alami struktur dimana periode alami dari struktur tidak boleh melebihi 3. Hal ini dikarenakan struktur akan mengalami resonansi karena periodenya mendekati atau sama dengan periode gelombang laut. Oleh karena itu, perlu diperhitungkan nilai dari periode natural struktur. Semakin banyak jumlah kaki struktur, maka semakin rigid. Hal ini menyebabkan periode natural struktur semakin kecil.

2.2.9 *Spectral Method*

Metode spectral menganalisis dengan menyesuaikan penyebaran energi dari spektrum yang sudah ada. Gelombang yang digunakan berupa gelombang acak maka perhitungan yang dilakukan tidak serta merta dapat dideterministikan secara langsung seperti pada metode sebelumnya. Pendekatan statistic perlu dilakukan untuk menghitung tegangan yang terjadi pada bangunan dalam gelombang acak.

Melakukan metode spectral diperlukan data-data yang cukup sehingga mendukung proses ini berjalan dengan baik. Data tersebut didapatkan dari kondisi riil dan diubah menjadi spectrum-spektrum gelombang yang dapat dikonversikan menjadi tegangan yang diterima oleh struktur.

2.2.10 *Fracture Mechanic*

Mekanika kepecahan adalah metode untuk melakukan analisis perilaku kepecahan pada suatu sambungan struktur dengan cara menganalisa lebih lanjut pada area tertentu dengan ruang lingkup lokal. Analisis ini dilakukan pada tubular joint yang akan atau sudah mengalami retakan. Proses mekanika kepecahan antara lain diawalinya dengan retak awal (*crack initiation*), kemudian adanya perambatan retak (*crack propagation*), hingga pada akhirnya terjadi retak yang dapat mengakibatkan kegagalan struktur (*final fracture*). Pada analisis ini terdapat dua metode yangitu *linier elastic fracture mechanics* (LEFM) dan *elastic plastic fracture mechanics* (EPFM).

a. *Linier Elastic Fracture Mechanic* (LEFM)

LEFM merupakan metode yang menunjukan hubungan antara medan tegangan dengan distribusinya pada sekitar ujung retakan berdasarkan ukuran, bentuk, orientisai dan material property. Parameter yang digunakan dalam metode LEFM adalah SIF dimana SIF merupakan *Stress Intensity Factor* yang digunakan untuk menentukan karakteristik dari suatu retakan yang terjadi pada *tubular joint*.

b. *Elastic Plastic Fracture Mechanics* (EPFM)

EPFM adalah lanjutan dari metode LEFM dimana yang dianalisa adalah bagian material yang mendekati batas *plastic* dari suatu material. Umumnya sering digunakan pada material yang bersifat *ductal* yang memiliki sifat elastis-plastis.

2.2.11 *Stress Intensity Factor* (SIF/K)

Parameter yang digunakan untuk *fracture toughness* salah satunya adalah *stress intensity factor* (SIF) yang menentukan kepecahan dari materi. SIF adalah satu fungsi tegangan, geometri, dan ukuran retak. Bentuk retak pada SIF dapat dilihat pada Gambar 2.4. SIF dapat diwakili dengan persamaan sebagai berikut:

$$K = \sigma_{nom}\sqrt{\pi\alpha}f_{(g)} \quad (2.4)$$

dengan:

K = *stress intensity factor* (ksi/in)

A = panjang retak awal

σ_{nom} = tegangan nominal

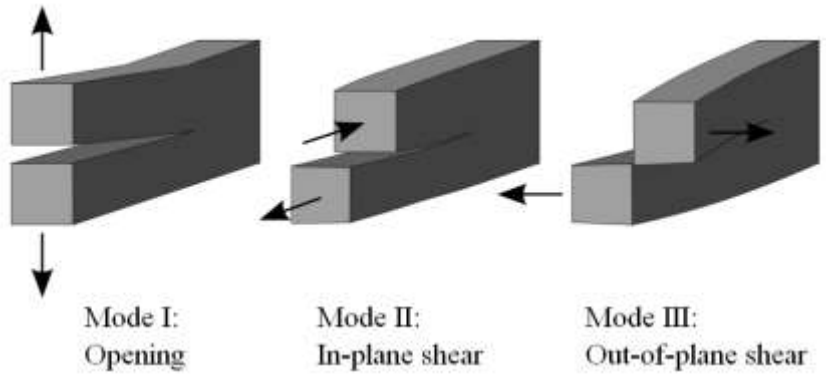
$f_{(g)}$ = fungsi koreksi terhadap dimensi, geometrid an posisi retak

Berikut adalah beberapa mode pembebanan yang terjadi untuk menentukan SIF:

a. Mode I, merupakan keadaan yang tegangan tarik arahnya lurus dengan bidang rambatan retak sehingga mengakibatkan terjadi retakan tegak lurus dengan bidang retak.

b. Mode II, disebut juga sebagai *in-plane shear* yang merupakan keadaan dimana tegagan geser searah dengan bidang rambat retak sehingga *displacement* sejajar dengan bidang retak.

c. Mode III, dapat disebut *out-plane shear* yang merupakan kombinasi dari mode I dan II sehingga perambatan retak saling berjauhan dengan arah yang berbeda.



Gambar 2. 4* Displacement *pada Permukaan Retak (Barson & Rolfe, 1987)

Pada pengerjaan tugas akhir, penulis menggunakan mode I (*opening mode*). Dalam menentukan tegangan dan displasmen pada retak, maka dilakukan dengan persamaan Irwin yaitu:

$$\sigma_x = \frac{K_1}{\sqrt{2\pi r}} cos\frac{\theta}{2}\left[1 - Sin\frac{\theta}{2}Sin\frac{3\theta}{2}\right] \quad (2.5)$$

$$\sigma_y = \frac{K_1}{\sqrt{2\pi r}} cos\frac{\theta}{2}\left[1 + Sin\frac{\theta}{2}Sin\frac{3\theta}{2}\right] \quad (2.6)$$

$$\sigma_z = v\left[\sigma_x + \sigma_y\right] = 0 \quad (2.7)$$

$$\tau_{xy} = \frac{K_1}{\sqrt{2\pi r}} Sin\frac{\theta}{2}Cos\frac{\theta}{2}Cos\frac{3\theta}{2} \quad (2.8)$$

$$\tau_{xy} = \tau_{yz} = 0 \quad (2.9)$$

dengan:

K_1 = *Stress Intensity Factor* untuk Mode I

σ_x = tegangan normal (MPa)

τ_{xy} = tegangan geser bidang x arah sumbu y (MPa)

r = jarak *cracktip* dengan *node* yang ditinjau (m)

θ = sudut antara *node* yang ditinjau dengan sumbu x (*degree*)
v = *Poisson's Ratio*

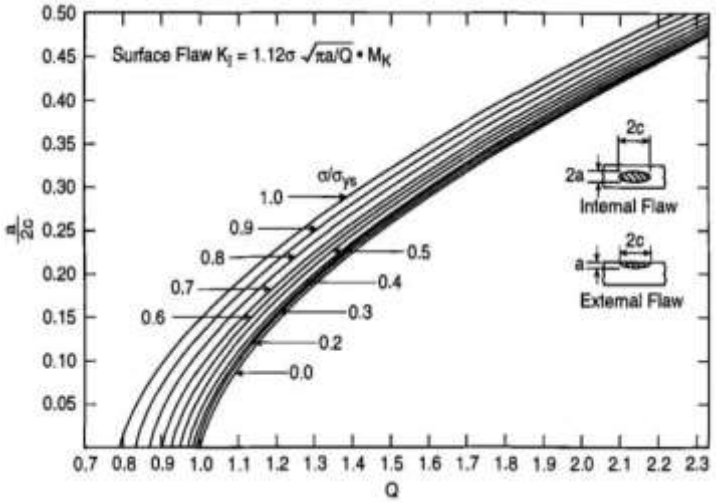
Pada perhitungan retak menggunakan semi-eliptical yang memiliki persamaan SIF sebagai berikut:

$$K_1 = 1.12\sigma \sqrt{\pi \frac{a}{Q}}\, M_k \quad (2.10)$$

Nilai dari Q dapat ditentukan dengan menggunakan grafik sesuasi Gambar 2.5 dengan menghubungkan nilai a/2c dan σ/σ_{ys}.

$$M_k = 1.0 + 1.2\left(\frac{a}{t} - 0.5\right) \quad (2.11)$$

Keterangan:
K_1 = *Stress Intensity Factor*
Q = Faktor koreksi *front free surface*
M_k = Faktor koreksi *back free surface*
a = Kedalaman retak
t = Ketebalan material



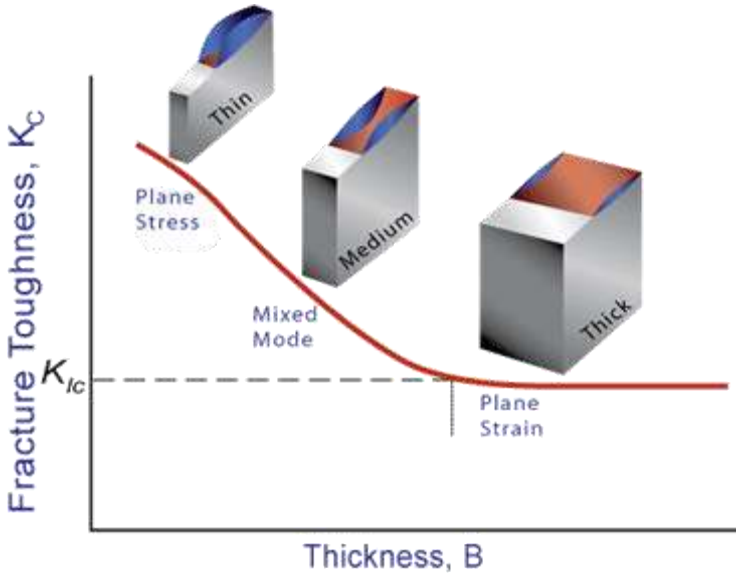
Gambar 2. 5 Grafik Perbandingan a/2c dan σ/σ_{ys} (Borson & Rolfe,1987)

2.2.12 *Fracture Toughness* (K_{1C})

Fracture toughness merupakan kemampuan material untuk menahan beban atau deformasi yang terjadi akibat retak dengan memperhatikan faktor cacat material, geometri material, kondisi pembebanan, dan tentunya *property* material yang digunakan. Pengertian yang lebih mudah *fracture toughness* bisa disebut sebagai ketanguhan retak suatu material untuk mengevaluasi kemampuan komponen yang mengandung cacat untuk melawan *fracture*.

Besarnya nilai *fracture toughness* dipengaruhi oleh ketebalan suatu material, semakin tebal suatu material maka nilai *fracture toughness* akan semakin besar akan tetapi jika tebal material melebihi batas kritis maka akan menyebabkan nilai *fracture toughness* cenderung konstan. Ketebalan suatu material dipengaruhi oleh

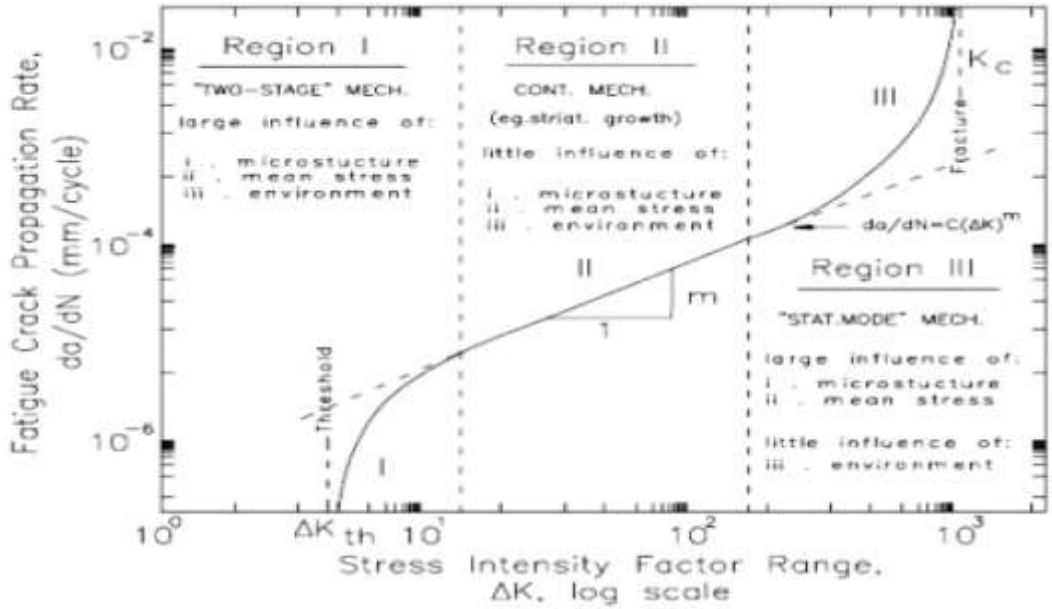
kondisi pembebanan, jika beban yang diberikan merupakan *plane strain* (regangan/tarikan) maka akan membutuhkan nilai ketebalan yang lebih besar sedangkan jika beban yang diberikan merupakan *plane stress* (tekanan) maka membutuhkan nilai ketebalan yang relatif lebih kecil. Gambar 2.6 adalah grafik perbandingan nilai tebal material dengan nilai fracture toughnes.



Gambar 2. 6 Perbandingan Nilai Tebal Material dan Fracture Toughness

2.2.13 Perambatan Retak

Pada kegagalan akibat retakan ditandai dengan munculnya retak awal atau disebut *initial crack*. Pada tahap ini menjadi indikasi awal terjadinya kegagalan struktur. Perjalanan retakan ini terus berlanjut dengan diikuti perambatan retak yang diakibatkan tegangan geser (*micro crack growth stage*) yang terus merambat sehingga didominasi oleh adanya tegangan tarik (*macro crack growth stage*) sampai sisa penampang komponen tidak mampu lagi mendukung tegangan kerja hingga patah (*final fracture*). Gambar 2.7 menunjukan wilayah perambatan retak sesuai Rolfe, 1999.



Gambar 2. 7 Kurva Perambatan Retak (Stanley, 1999)

a. Nilai da/dN antara region I dan region II adalah:

$$\frac{da}{dN} = c\ (\Delta K^m - \Delta K + h^m) \tag{2.12}$$

Nilai da/dN region II adalah:

$$\frac{da}{dN} = c\ (\Delta K^m) \tag{2.13}$$

b. Nilai da/dN antara region I, II, dan region II (bila efek R diperhitungkan) adalah:

$$\frac{da}{dN} = \frac{\Delta K^m}{4\pi\sigma\gamma}\left\{\frac{\Delta K-(\Delta K+h)(1-R)}{(1-R)K_c-\Delta K}\right\}\frac{1}{2} \tag{2.14}$$

dengan:

da/dN	= kecepatan perambatan retak
ΔK	= range factor intensitas tegangan
K	= harga kritis K
R	= rasio tegangan (Min/max)
C dan m	= Parameter Pertumbuhan Retak

2.2.14 Kedalaman Retak Kritis

Panjang kedalaman retak yang telah melewati nilai retak kritis menunjukan struktur tersebut mengalami kelelahan. Pada matematis, dapat ditulis dengan rumus sebagai berikut:

$$a_{cr} = \left(\frac{K1C}{\sigma_{max}\sqrt{\pi}}\right)^2 \tag{2.15}$$

2.2.15 Analisa Umur Kelelahan

Pada laporan tugas akhir ini, penulis melakukan analisa dengan mekanika kepecahan yang didapatkan dari pengintegralan hukum paris-endogan tentang perambatan retak. Hasil dari integral hukum tersebut dapat dilihat sebagai berikut:

$$N = \int_{a_0}^{a_f} \frac{da}{C(\Delta K)^m} \quad (2.16)$$

dengan:

a_0 = panjang retak awal (*initial crack*)

N = Jumlah *cycle*

af = panjang retak akhir (*final crack*)

ΔK = perubahan *stress intensity factor*

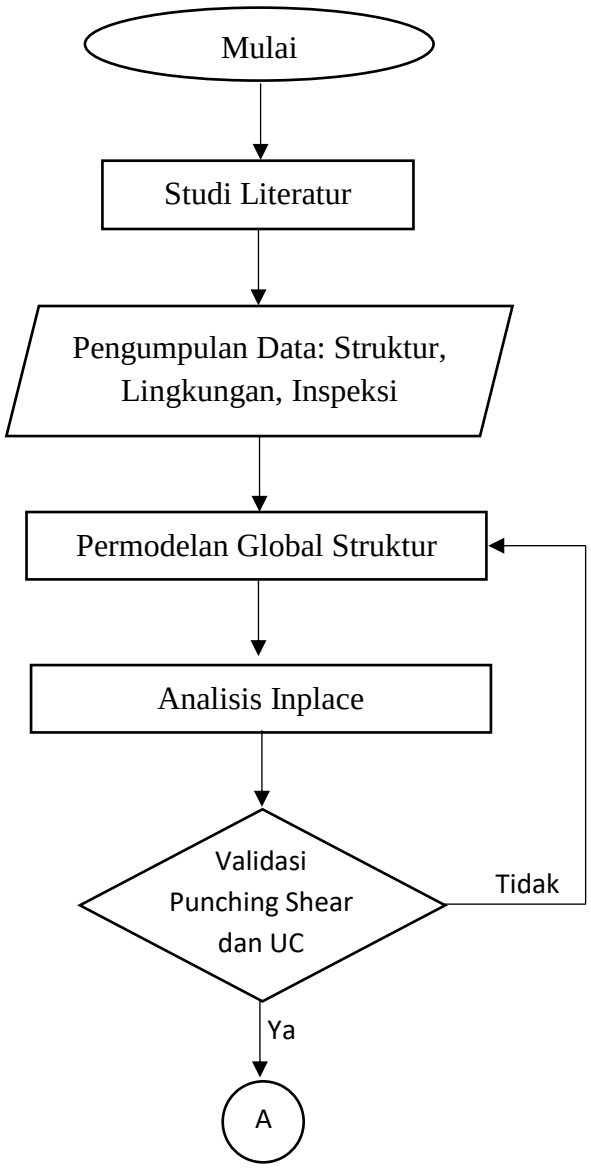
C dan m = konstanta material

(Halaman ini sengaja dikosongkan)

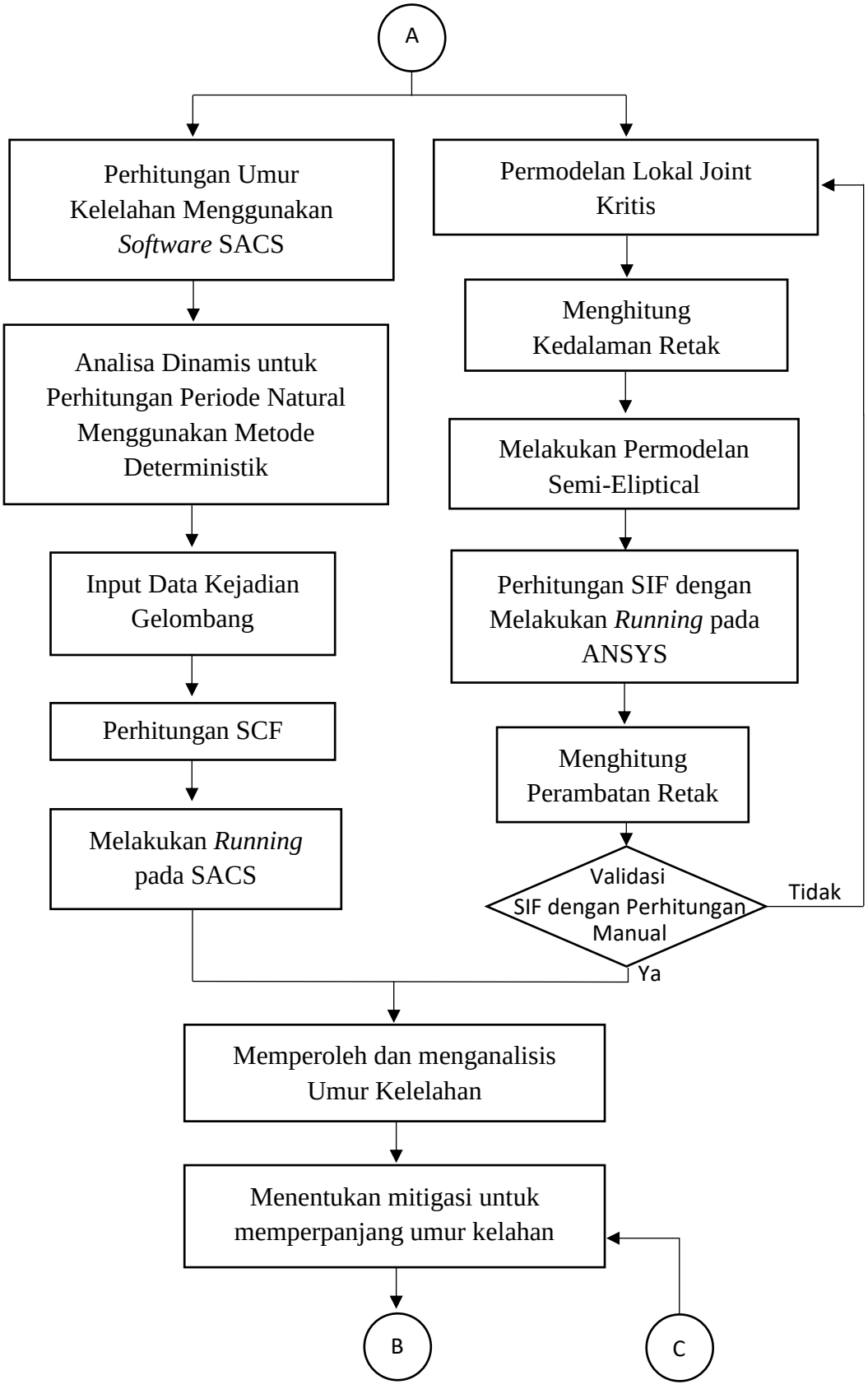
BAB III
METODOLOGI PENELITIAN

3.1 Diagram Alir Penelitian

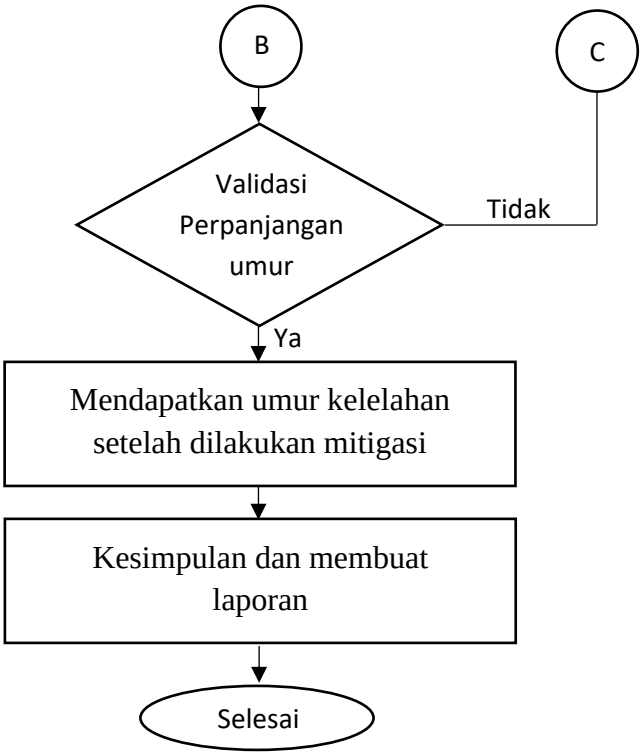
Gambar 3.1 adalah alur penelitian yang digunakan dalam pengerjaan tugas akhir ini:



Gambar 3.1 ***Diagram Alir Pengerjaan Tugas Akhir***



Gambar 3.1 Diagram Alir Pengerjaan Tugas Akhir (Lanjutan)



Gambar 3.1 Diagram Alir Pengerjaan Tugas Akhir (Lanjutan)

3.2 Penjelasan Diagram Alir

Berikut penjelasan diagaram alir yang digunakan dalam pengerjaan tugas akhir ini:

1. Studi Literatur

   Pada tahap ini penulis melakukan pembelajaran dan pengumpulan literatur yang digunakan sebagai referensi pengerjaan tugas akhir.

2. Pengumpulan Data

   Pengumpulan data dilakukan oleh penulis dengan tujuan menunjang dalam menganalisa studi kasus yang dapat diambil dari data yang telah dikumpulkan seperti data strukutr, lingkungan, dan inspeksi sebelumnya.

3. Permodelan Global Struktur

   Permodelan struktur digunakan sebagai objek penelitian tugas akhir yang dimodelkan menggunakan perangkat lunak SACS 5.7 V8i

4. Analisa *In-place*

   Pada tahap ini, penulis melakukan analisa terhadap model struktur untuk menentukan kondisi tiap *member* pada tiap pembebanan yang diterima struktur.

5. Validasi *Punching Shear* dan *Unity Check*

   Tahap ini dilakukan untuk melihat nilai dari *punching shear* dan *unity check* yang tertinggi.

6. Perhitungan Umur Kelelahan

   Perhitungan umur kelelahan ini menggunakan mmetode *cumulative damage* yang dibantu oleh perangkat lunak SACS.
7. Permodelan Lokal *Joint*

   Melakukan permodelan terhadap sambungan *tubular* pada *joint* kritis menggunakan permodelan 3D dengan *software SolidWorks*.
8. Penentuan Titik Acuan

   Penentuan dilakukan dengan mengambil 4 titik yang dapat mewakili daerah tegangan maksimum tersebut.
9. Validasi Titik Acuan Retak

   Melakukan validasi titik acuan retak dengan menghitung nilai K/ SIF. Perhitungan ini menggunakan *software* ANSYS dan divalidasi dengan perhitungan manual nilai K.
10. Menghitung Kedalaman Retak Kritis

    Pada tahap ini, penulis melakukan perhitungan kedalaman kritis untuk mengetahui kemampuan struktur setelah mengalami retakan.
11. Permodelan Retak Semi-eliptical

    Penulis melakukan permodelan dengan menggunakan jenis retak semi-eliptical yang sudah tervalidasi pada titik acuan.
12. Perhitungan SIF Mengunakan *Software* ANSYS

    Pada perhitungan ini, penulis akan mengerjakan secara manual dan program ANSYS.
13. Perhitungan Cepat Rambat Retak

    Perhitungan ini dilakukan dengan 2 metode yaitu secara manual dan *running* menggunakan *software* ANSYS.
14. Menghitung Umur Kelelahan

    Pada tahap ini, akan didapatkan 2 umur kelelahan yaitu *cumulative damage* dan *fracture mechanic*.
15. Menentukan Mitigasi pada *Joint*

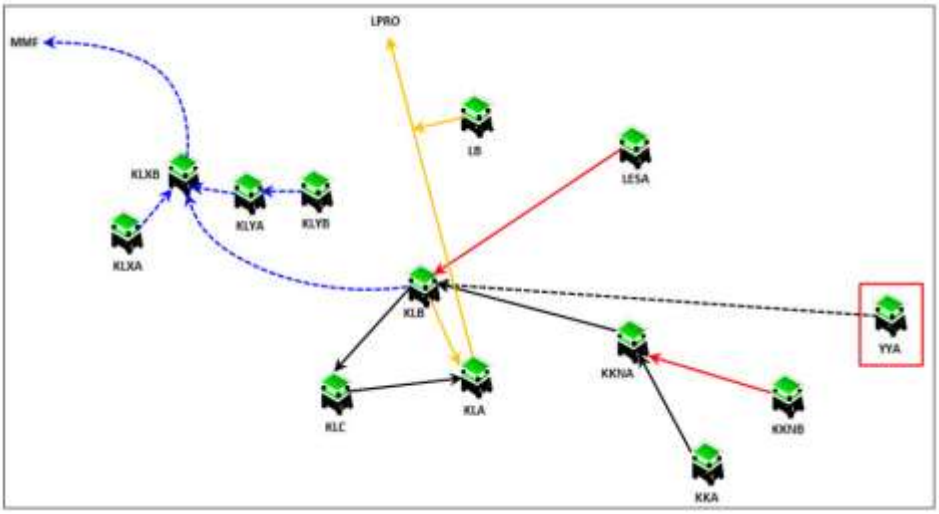
    Setelah mendapatkan umur kelelahan, maka penulis melakukan mitigasi yang dapat memperpanjang umur kelelahan pada *joint* kritis.
16. Validasi Perpanjangan Umur

    Tahap ini adalah memilah metode yang paling tepat digunakan dalam tahap mitigasi sehingga mendapatkan umur kelelahan terpanjang.
17. Kesimpulan

    Penulis melakukan kesimpulan dari hasil pengerjaan tugas akhir setelah semua proses analisis selesai dan menjawab semua rumusan permasalahan yang akan dimasukan dalam laporan analisis.

3.3 Data Struktur

Rancangan objek studi yang digunakan oleh penulis adalah YYA *Field Platform* milik Pertamina Hulu Energi Offshore North West Java yang berlokasi di 5.3 km timur laut dari KKNA *Platform* dan 13.5 km Tenggara KLB *Platform*. Gambar 3.2 menunjukan lokasi *Platform* YYA terhadap *Platform* lain milik PT. PHE ONWJ.



***Gambar 3. 2 YYA* Platform Location**

YYA *Platform* beroperasi pada kedalaman 62 ft yang di-*install* pada tahun 1987. Gambar 3.3 adalah *Platform* YYA

1. Nama *Platform* : YYA-Platform

***Gambar 3. 3 YYA* Field Platform**

2. Pemilik : Pertamina Hulu Energi ONWJ
3. Jenis Struktur : Terpancang

4. Lokasi : KILO Field
5. Jumlah Kaki : 3 (tiga)
6. Jumlah Deck : 2 (dua)
7. Isometri Platform : Ditunjukan pada Gambar

Gambar 3. 4 Isometri Platform YYA

Gambar 3.4 adalah model *Platform* YYA menggunakan *software* SACS dengan penampakan isometri. Pada model inilah yang dilakukan analisa oleh penulis dalam menentukan umur kelelahan *platform* tersebut.

3.4 Data Lingkungan

Melakukan analisis umur kelelahan diperlukan data-data lingkungan yang bekerja pada struktur. Berikut adalah data lingkungan yang digunakan dalam analisa tugas akhir ini.

3.4.1 Data Sebaran Gelombang

Umur kelelahan struktur sangat dipengaruhi oleh data gelombang yang diterima oleh struktur. Data ini dapat dilihat pada Tabel 3.1 dan Tabel 3.2 yang didapat dari laporan analisa milik PT. PHW ONWJ tahun 2016.

Tabel 3. 1 ***Jumlah Kejadian Signifikan Tinggi Gelombang***

Significant Wave Height (ft)	Number of Waves Occurrences								Total Wave
	N	NE	E	SE	S	SW	W	NW	
	315^0	270^0	225^0	180^0	135^0	90^0	45^0	0^0	
1.95	7990600	13057700	19489100	4027800	1494200	779600	8705200	9419800	64,964,000
5.95	300660	490075	731450	154150	57675	30395	327550	353475	2,445,430
9.95	10784	18980	26320	3050	625	5	11809	13687	85,260
13.95	440	720	1073	0	0	0	429	521	3,183
17.95	15	24	36	0	0	0	12	16	103
21.95	1	1	1	0	0	0	0	1	4
Sum	8302500	13567500	20247980	4185000	1552500	810000	9045000	9787500	67,497,980.00

Tabel 3. 2 ***Arah Signifikan Tinggi Gelobang***

Significant Wave Height (ft)	Peak Wave Periods							
	N	NE	E	SE	S	SW	W	NW
	315^0	270^0	225^0	180^0	135^0	90^0	45^0	0^0
1.95	4.7	4.7	4.7	4.4	4.1	4	4.6	4.7
5.95	6.6	6.6	6.6	5.4	5.1	5	6.4	6.5
9.95	7.1	7.2	7.1	6	5.6	5.4	6.9	7
13.95	7.4	7.5	7.4				7.1	7.3
17.95	7.7	7.8	7.7				7.3	7.6
21.95	7.9	8.1	7.9					7.8

3.4.2 Kriteria Gelombang

Formulasi 3 gelombang *stream function* digunakan untuk melinierisasi tanah dan formulasi gelombang airy yang digunakan secara statis untuk menyalurkan analisis kelelahan.

3.4.3 Mendesain Ketinggian Gelombang

Maksimum tinggi gelombang untuk analisa kelelahan adalah 1 tahun tinggi gelombang yang memiliki tinggi minimum 1 ft.

3.4.4 Arah Gelombang

Pada *platform* perlu diketahui arah gelombang. Hal ini untuk mengindikasikan bahwa *platform* menerima beban dominan dari arah tertentu sehingga dapat mempermudah perhitungan. Arah gelombang dapat dilihat pada Tabel 3.3.

Tabel 3. 3 ***Arah Gelombang***

Direct (From)								Total %
NW	W	SW	S	SE	E	NE	N	
12.30	20.10	30.00	6.20	2.30	1.20	13.40	14.50	100.00

3.4.5 *Marine Growth*

Data ketebalan *marinie growth* dari mudline hingga HWL (*High Water Level*) sebesar 2 in. Kepadatan *marine growth* diasumsikan setiap 77.0 pcf.

3.4.6 *Corrosion Allowance*

Ketebalan korosi yang diijinkan sebesar 1/8" untuk keseluruhan member jacket yang berada pada *splash zone* antara elevasi (-) 3.8' dan (+) 10'.

3.4.7 *Material Propeties*

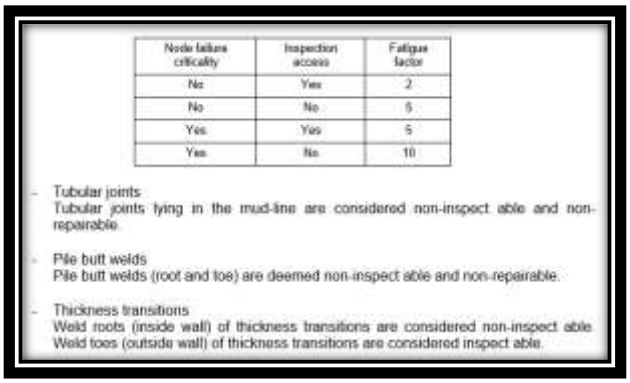
Properti struktur sangat diperlukan untuk mengetahui material apa yang digunakan oleh struktur sehingga dapat meningkatkan keakuratan dari analisis. Tabel 3.4 menunjukan material yang digunakan oleh struktur.

Tabel 3. 4 ***Material yang Digunakan***

Item	Application	Specification	Yield Stress (ksi)	Type Clasification	Group-Class
Plate	Stiffeners, Deck Plate, Walls, Drip Pans.	ASTM A36	36	Type III	I-C
	Stiffeners, Flange Plate, Web Plate, Boxed Plate, Cap Beam	ASTM A572 Gr.50, with S28 and S29, API 2H Gr.50 with S1, S3	50	Type I	II-B
	Padeyes, Fabricated Girders, Capbeam (where tension members attached)	ASTM A572 Gr.50, with S28 and S29, API 2H Gr.50 with S1, S3, S4, S5	50	Type II	II-B
Tubular Section	Stairs, Pipe Supports	API 5L Gr.B, ASTM A106 Gr.B	35	Type II	I-B
	Truss Brace for Mechanical support Frame (MSF)	API 5L Gr.X52 with SR5 or SR6	52	Type I	II-B
	Truss Brace for MSF, MSF Legs	API 2H Gr.50 withS1,S3,S4,S5	50	Type II	II-A
		API 5L Gr.X52 with SR5 or SR6	52	Type I	II-B
	Truss Brace for MSF, MSF Legs,Crane Pedestal	API 2H Gr.50 with S1,S3,S4,S5	50	Type II	II-A
Rolled Section	Walkways, Stair, Pipe Support	ASTM A36	36	Type III	I-C
	Floor Beams, Truss Beams, Column	ASTM A572 Gr.50 with S28 and S29	50	Type I	II-B
	Truss Beams, Columns	ASTM A572 Gr.50 with S28 and S29	50	Type II	II-B
Joint Cans	Topsides joint cans	ASTM A36	36	Type IV	I-B
		API 5L Gr.B	35		I-B
	Topsides joint cans	ASTM A572 Gr.50, S28 and S29, API 2H Gr.50 with S1,S3, S4, S5	50	Type II	II-B
	Jacket joint cans	API 5L Gr.X52 with SR5 or SR6	52		II-B

3.4.8 Faktor Desain dan Umur Kelelahan

Pada umumnya, standar yang digunakan sesuai API RP 2A adalah 20 tahun. Namun ada ketentuan factor yang dikalian umur kriteria supaya menambahkan kekuatan struktur, sesuai API RP 2A. Gambar 3.5 menunjukan faktor kelelahan sesuai API RP 2A.



Node failure criticality	Inspection access	Fatigue factor
No	Yes	2
No	No	5
Yes	Yes	5
Yes	No	10

- Tubular joints
  Tubular joints lying in the mud-line are considered non-inspect able and non-repairable.
- Pile butt welds
  Pile butt welds (root and toe) are deemed non-inspect able and non-repairable.
- Thickness transitions
  Weld roots (inside wall) of thickness transitions are considered non-inspect able.
  Weld toes (outside wall) of thickness transitions are considered inspect able.

Gambar 3. 5 ***Standard API RP 2A untuk Design Fatigue Factors***

(Halaman ini sengaja dikosongkan)

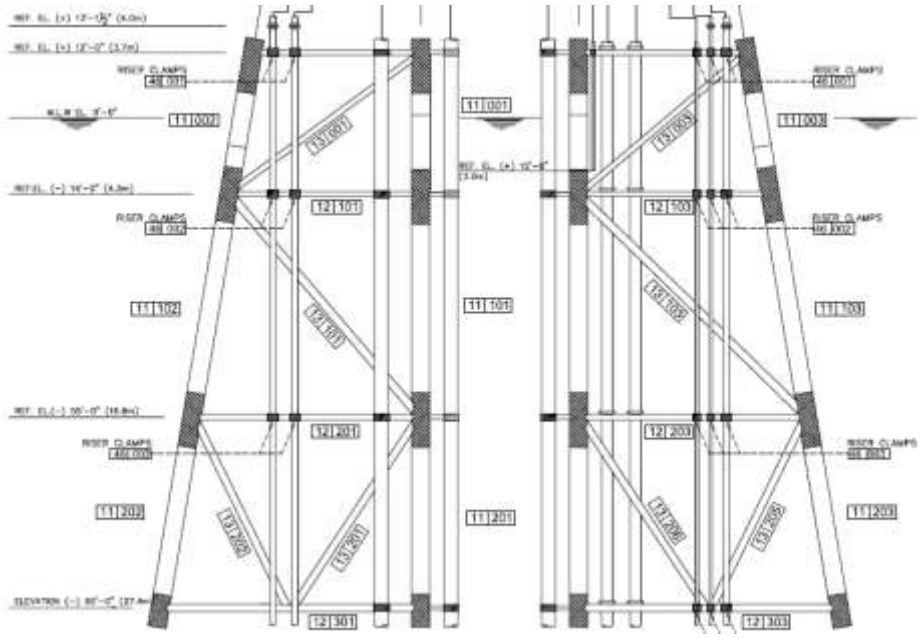
BAB IV
ANALISIS DAN PEMBAHASAN

4.1 Permodelan dan Validasi Struktur YYA *Platform*

Permodelan struktur YYA *platform* menggunakan perangkat lunak SACS 5.7, dan referensi data yang digunakan adalah "YYA *Fatigue Analysis Structural Design Report 2013*" dan *drawing* milik PT. Pertamina Hulu Energi Offshore North West Java. Gambar 4.1 merupakan gambar isometri dari struktur YYA *Platform.*

Gambar 4. 1 *Permodelan Struktur YYA Platform*

Kondisi *platform* YYA yang sudah beroperasi selama 30 tahun menyebabkan perubahan ketebalan tiap member dari sebelum *platform* beroperasi. Pada Gambar 4.2 diberitahukan bahwa elevasi dari platform YYA yang dicantumkan pada "UYA-*Well Tripod Underwater Platform Inspection and Maintenance Report 2012"*



Gambar 4. 2 *Elevasi Struktur untuk Pengukuran Wall Thickness*

Struktur yang telah diinstal selama 30 tahun ini akan mengalami degradasi pada ketebalannya. Pada tabel 4.1 ditunjukan data ketebalan pada struktur sebelum beroperasi (tahap *design*) dan sesudah beroperasi selama 30 tahun. Data ini diambil dari *report* "UYA-*Well Tripod Underwater Platform Inspection and Maintenance Report 2012*"

Tabel 4. 1 Perbandingan *Wall Thickness*

No.	Elevation	Wall Thickness (mm)	
		Awal	Setelah 30 Tahun
1	EL (±) 0.00 MSL	26	25.4
2	EL (-) 7'-3" (2.2m)	32	31.75
3	EL (-) 14'-0" (4.3m)	26	25.4
4	EL (-) 34'-10" (10.6m)	32	31.75
5	EL (-) 44'-0" (13.4m)	26.1	25.4
6	EL (-) 55'-0" (16.8m)	32.2	31.75
7	EL (-) 62'-0" (18.9m)	32.2	31.75
8	VDM 13-002	32.2	31.8

Dari permodelan, kemudian mendapatkan berat dari struktur. Hasil berat struktur di perangkat lunak juga harus disesuaikan dengan hasil berat struktur yang ada di *report* dan hasil dari keduanya dibandingkan dengan prosentase tidak boleh lebih dari 5%. Pada Tabel 4.2 berikut ini ditunjukan tabel

perbandingan hasil dari berat struktur pada perangkat lunak dan hasil berat struktur pada *report*.

***Tabel 4. 2** Perbandingan Hasil Berat Struktur*

Validasi	Model	*Report*	Selisih (%)
Selfweight	973.879	974.33	0.046 %

Untuk melakukan analisa dengan menggunakan metode *cumulative damage* diperlukan data pembebanan gelombang. Pembebanan ini diambil dari data lingkungan pada lokasi yang tertera pada Tabel 4.3 sebagai berikut:

***Tabel 4. 3** Lokasi Platform*

Platform	**East**	**South**
YYA	107° 37’ 36.770”	006° 05’ 39.830”

Data pembebanan ini yang akan digunakan untuk membebani struktur dan akan diketahui joint kritis dan umur kelelahan pada struktur tersebut. Pada Tabel 4.4 diberitahukan data pembebanan yang digunakan oleh penulis.

***Tabel 4. 4** Data Kejadian Gelombang*

Wave Height (ft)	Periode Gelomb-ang	N	NE	E	SE	S	SW	W	NW	Total
1.95	4.6	7990600	13057700	19489100	4027800	1494200	779600	8705200	9419800	64964000
5.95	5.9	300660	490075	731450	154150	57675	30395	327550	353475	2445430
9.95	6.4	10784	18980	26320	3050	625	5	11809	13687	85260
13.95	6.8	440	720	1073	0	0	0	429	521	3183
17.95	7.5	15	24	36	0	0	0	12	16	103
21.95	7.8	1	1	1	0	0	0	0	1	4
TOTAL		8302500	13567500	20247980	4185000	1552500	810000	9045000	9787500	67497980

4.2 Analisa Fatigue Menggunakan Metode *Cummulative Damage*

4.3.1 Periode Natural

Dalam menganalisa fatigue menggunakan metode *cummulative damage*, dapat meninjau nilai periode natural terlebih dahulu dengan analisa *dynamic extract modeshape* menggunakan *software* SACS 5.7. Berikut ini merupakan hasil dari analisa *dynamic extract modeshape*.

Tabel 4. *5 Periode Natural*

Mode	FREQ.(CPS)	GEN. MASS	EIGENVALUE	PERIOD (SECS)
1	0.559940	2.2902831E+03	8.0789951E-02	1.7859058
2	0.608341	2.5606461E+03	6.8445672E-02	1.6438148
3	0.860818	4.0575523E+03	3.4183577E-02	1.1616857
4	1.401184	7.0343552E+03	1.2901784E-02	0.7136820
5	1.528736	7.1324043E+03	1.0838653E-02	0.6541352
6	2.303021	4.5512133E+02	4.7757830E-02	0.4342123
7	2.462372	7.7787422E+02	4.1776569E-03	0.4061124
8	2.660599	4.0503624E+03	3.5783388E-03	0.3758552
9	2.962333	7.6292010E+02	2.8865062E-03	0.3375718
10	3.364026	8.3208189E+02	2.2383167E-03	0.2972629

Dari hasil Tabel 4.5 menunjukkan bahwa nilai periode natural terbesar adalah 1.7859058 *secs*, sehingga metode yang digunakan dalam analisa adalah metode deterministik yang dimana memiliki nilai periode < 3 *secs*.

Pada tugas akhir ini menganalisa umur kelelahan secara global menggunakan metode deterministik karena periode natural struktur YYA adalah 1.786 *secs* yang kurang dari pada periode gelombang laut yaitu 3 *secs*.

4.3.2 *Dynamic Amplification Factor*

Analisa *fatigue* deteministik ini dilakukan dengan memasukkan data kejadian gelombang yang sudah ditunjukan pada Tabel 4.4. Nilai dari perhitungan DAF (*Dynamic Amplification Factor*) ini akan menunjukkan bagaimana pengaruh osilasi struktur terhadap adanya perbesaran gelombang.

Berikut ini merupakan persamaan yang digunakan untuk menghitung nilai DAF.

$$DAF = \frac{1}{\sqrt{(1-\left(\frac{Tn}{T}\right)^2)^2+2\beta(\frac{Tn}{T})^2}} \quad (4.1)$$

Dengan:

Tn : Periode Natural Struktur (sekon)
T : Periode Gelombang (sekon)
β : Damping Ration (20%) Berdasarkan API RP2A

Nilai periode natural yang mendekati dengan nilai periode dari gelombang, maka akan terjadi penambahan nilai DAF (*Dynamic Amplification Factor*) yang cukup tinggi. Periode struktur yang didapatkan dari analisa menggunakan SACS adalah 1.7859058 detik dan β = 0.05 akan dimasukkan kedalam analisa seperti pada Tabel 4.6.

Tabel 4. 6 *Nilai DAF (Dynamic Amplification Factor)*

H gelombang (ft)	T gelombang (detik)	Tn/T	(Tn/T)2	DAF
1.95	4.6	0.388239	0.15073	1.165367
5.95	5.9	0.302695	0.091624	1.094804
9.95	6.4	0.279047	0.077867	1.079511
13.95	6.8	0.262632	0.068976	1.069838
17.95	7.5	0.23812	0.056701	1.056748
21.95	7.8	0.228962	0.052423	1.052256

4.3.3 *Fatigue Life* Pada Member Kritis

Fatigue life atau umur kelelahan dari suatu sambungan bergantung pada beberapa faktor, antara lain karakteristik material, cacat las, retak mikro, bentuk geometri dari las dan lainnya. *Cummulative damage* dapat dihitung dengan persamaan *Palmgren-Miner Rule* yang dijabarkan sebagai berikut:

$$D = \sum_{i=1}^{m} \frac{n_i}{N_i} = \frac{n_1}{N_1} + \frac{n_2}{N_2} + \frac{n_3}{N_3} + \ldots\ldots\ldots \frac{n_m}{N_m} \quad (4.2)$$

Dengan:

ni = Jumlah siklus (rentang) tegangan dengan harga Si yang sebenarnya terjadi pada sambungan akibat beban eksternal (gelombang)

Ni = Jumlah siklus (rentang) tegangan dengan harga Si yang menyebabkan kegagalan sambungan yang ditinjau. Harga besaran ini dapat diperoleh dari diagram S-N untuk jenis sambungan yang sesuai.

Si = Rentang tegangan; 2 (dua) kali amplitude tegangan yang terjadi pada sambungan

Besarnya jumlah siklus *ni* untuk tiap tegangan *Si* yang ditimbulkan dari beban gelombang dengan karakteristik tinggi *Hi* (m) dan periode *Ti* (detik) dapat dihitung dari persamaan berikut ini:

$$N_i = \frac{P_i \times T}{T_i} \tag{4.3}$$

Dimana:

Pi = Frekuensi relatif kejadian tiap-tiap gelombang dengan karakteristik tinggi *Hi* (m) dan periode *Ti* (detik) yang menyebabkan timbulnya tegangan *Si*.

T = Umur kelelahan struktur setelah memperhitungkan siklus seluruh tegangan.

Persamaan *cummulative damage* akibat kelelahan didapatkan dengan cara mensubstitusikan persamaan 4.2 ke persamaan 4.3 menjadi sebagai berikut:

$$D = \frac{P_1 T}{N_1 T_1} + \frac{P_2 T}{N_2 T_2} + \frac{P_3 T}{N_3 T_3} + \ldots\ldots\ldots \frac{P_m T}{N_m T_m} = 1 \tag{4.4}$$

Umur kelelahan struktur dapat diturunkan menjadi satuan tahun dengan persamaan berikut:

$$T = \frac{1}{\left(\frac{Pi}{Ni\ Ti}\right)} \tag{4.5}$$

Dengan:

D = Kerusakan pertahun

ni = Jumlah *cycles* yang terjadi pertahun dalam range tegangan (i)

Ni = Jumlah *cycle* dalam range tegangan (i) yang diperlukan untuk menyebabkan *fatigue*

m = Jumlah range tegangan yang diperhitungkan

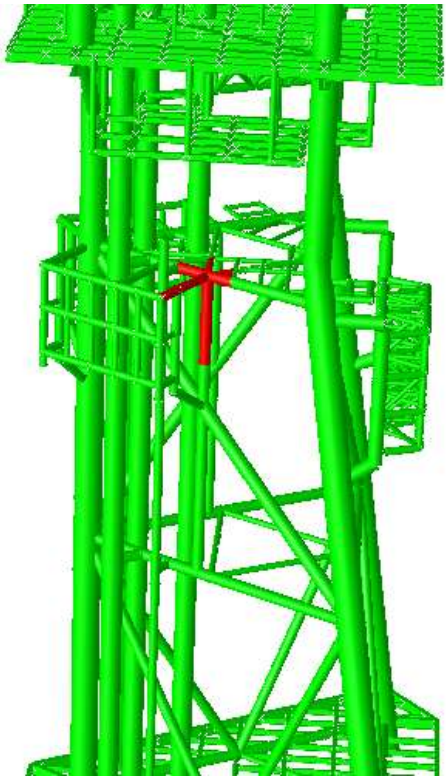
Pi = Frekuensi relative kejadian tiap-tiap gelombang dengan karakteristik tinggi *Hi* (m) dan periode *Ti* (detik) yang menyebabkan timbulnya tegangan HSS

T = Umur kelelahan struktur hasil hitungan

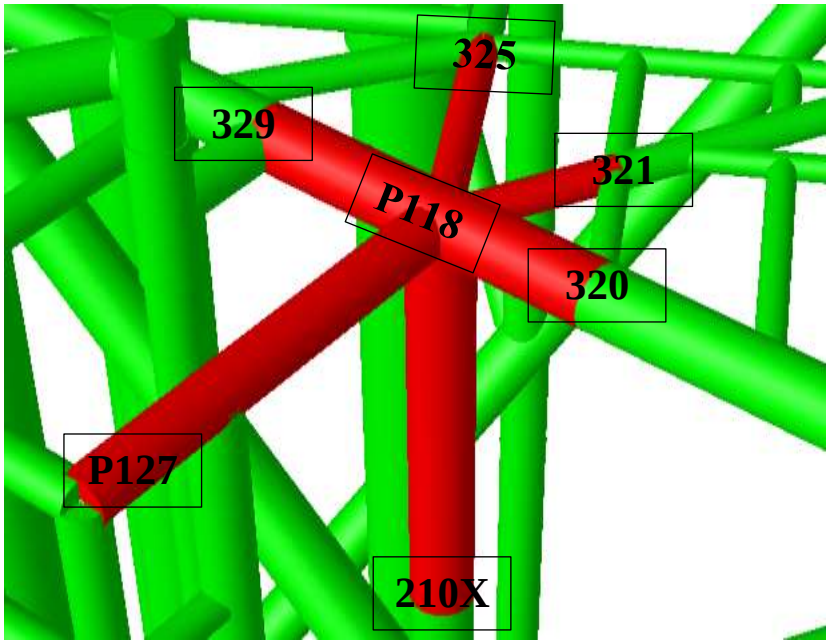
SF = *Safety Factor*

T_{dsg} = *Design* umur kelelahan struktur

Gambar 4.3 dan 4.4 menunjukan lokasi *joint* dengan umur kelelahan yang paling kecil menggunakan metode *cummulative damage:*



Gambar 4. 3 *Lokasi Joint Kritis P118*

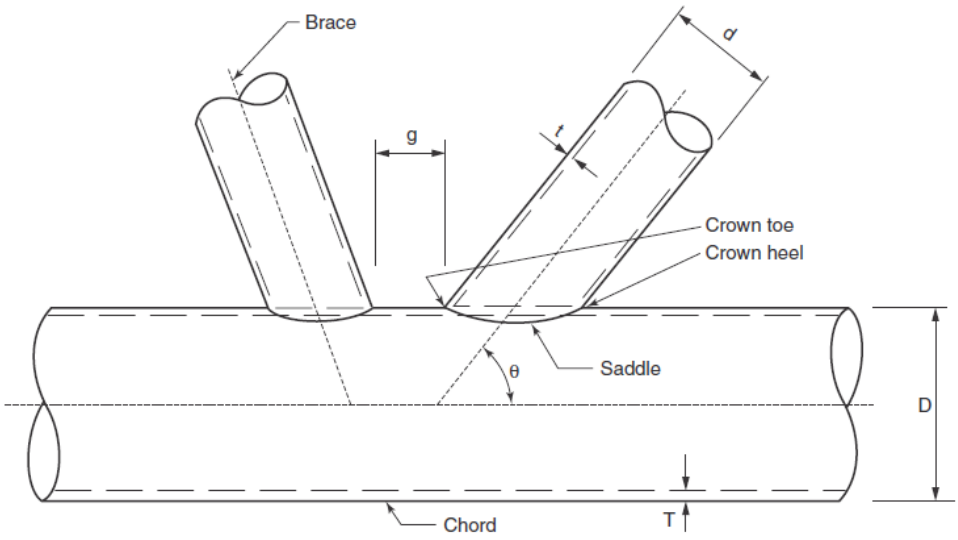


Gambar 4. 4 *Lokasi Joint Kritis P118*

Pada hasil *running software* SACS, didapatkan umur kelelahan paling kecil terjadi pada joint P118 yang memiliki umur kelelahan 233.39 tahun dari syarat minimum 20 tahun.

4.3.4 Parameter Tubular Joint

Di dalam API RP-2A WSD *tubular joint* dapat diklasifikasikan menjadi tipe K,T,Y, dan X seperti Gambar 4.5.



Gambar 4. 5 *Tubular Joint* Sederhana

(sumber: API RP 2A, 21st Edition, American Petroelum Institute, 2005)

Keterangan Parameter Utama:

D = diameter luar chord
L = panjang chord
d = diameter luar brace
T = ketebalan chord
t = ketebalan brace

Pada Tabel 4.7 ditunjukan syarat yang harus dipenuhi oleh tubular joint untuk menggunakan formula Effthymiou dalam menganalisa nilai SCF.

Tabel 4. 7 *Rentang Batasan Formula SCF oleh Efthymiou*

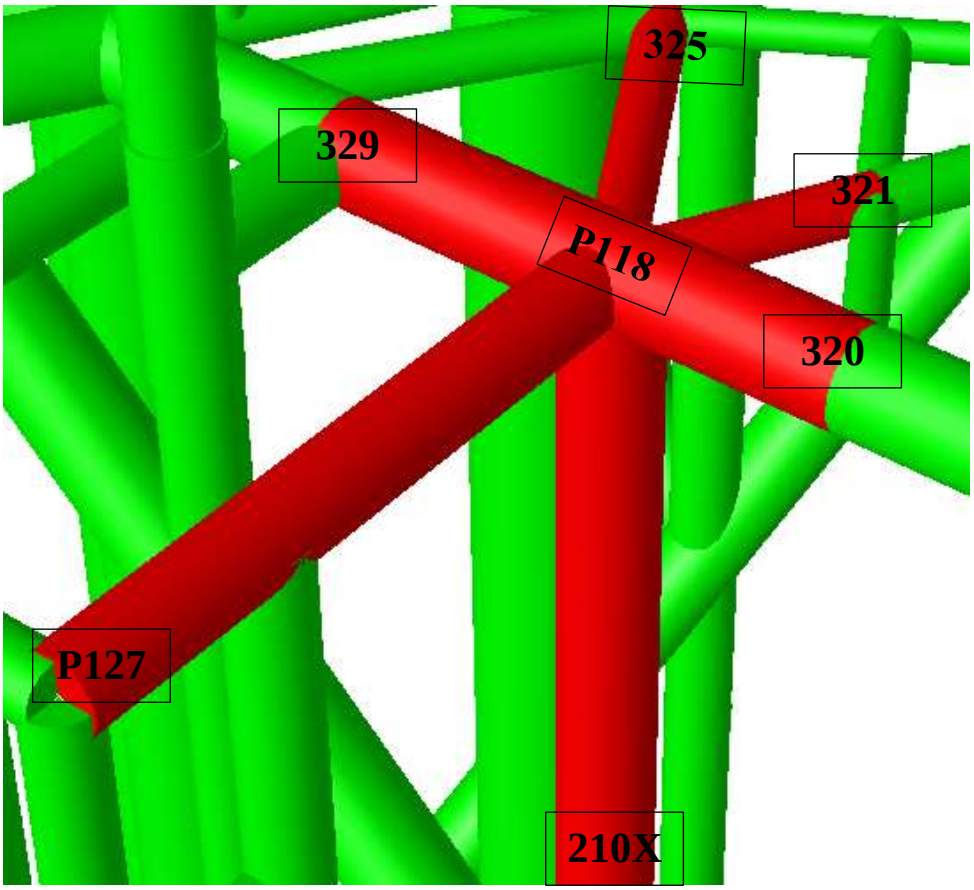
(sumber: Marine Structural Design Calculations, El Reedy, 2014)

Keterangan	Formula	Rentang Batasan
Rasio Diameter	$\beta = d/D$	$0.2 \leq \beta \leq 1$
Rasio Ketebalan	$\tau = t/T$	$0.2 \leq \tau \leq 1$

Tabel 4. 7 Rentang Batasan Formula SCF oleh Efthymiou (Lanjutan)

Keterangan	Formula	Rentang Batasan
Rasio Kelangsingan *Chord*	$\gamma = D/2T$	$8 \leq \gamma \leq 32$
Rasio *Gap* dan Diameter	$\zeta = g/D$	$20 \leq \theta \leq 90$
Rasio Panjang dan Diameter	$\alpha = 2L/D$	$4 \leq \alpha \leq 40$
Sudut Orientasi	θ	$20 \leq \theta \leq 90$

Perubahan geometri yang mendadak (abrupt change) mengakibatkan terjadinya konsentrasi tegangan. *Stess Concentration Factor* (SCF) merupakan parameter terhadap kekuatan sambungan yang nilainya akan berbeda tergantung geometrinya. Proses analisa yang penulis lakukan ini, menggunakan metode analisa berdasarkan Efthymiou. SCF merupakan parameter terhadap kekuatan sambungan yang nilainya akan berbeda tergantung geometrinya. Beberapa joint kritis yang ditinjau diketahui memiliki geometri sambungan T dan K antara chord dengan brace-nya. Dari data didapatkan parameter utama dari joint P118 yang dapat dilihat pada Gambar 4.6.



Gambar 4. 6 *Lokasi Joint Kritis*

Pada Tabel 4.8 akan menerangkan parameter utama tubular joint adalah sebagai berikut:

Tabel 4. 8 *Parameter Utama Tubular Joint*

Ket.	=	Nilai	Satuan	=	Nilai	Satuan
L	=	21.7	ft	=	6.61416	m
D	=	16	in	=	0.4064	m
dP127	=	12.75	in	=	0.32385	m
d325	=	8.625	in	=	0.21907	m
d321	=	8.625	in	=	0.21907	m
T	=	1	in	=	0.0254	m
tP127	=	0.75	in	=	0.0190	m
t325	=	0.625	in	=	0.0158	m
t321	=	0.625	in	=	0.0158	m

Pada Tabel 4.9 adalah turunan dari sambungan berbentuk K-T *joint* yang adalah sebagai berikut.

Tabel 4. 9 *Turunan Sambungan K-T Joint*

Ket.	=	Nilai
α	=	32.55
τP127	=	0.748
τ325	=	0.622
τ321	=	0.622
βP127	=	0.796
β325	=	0.539

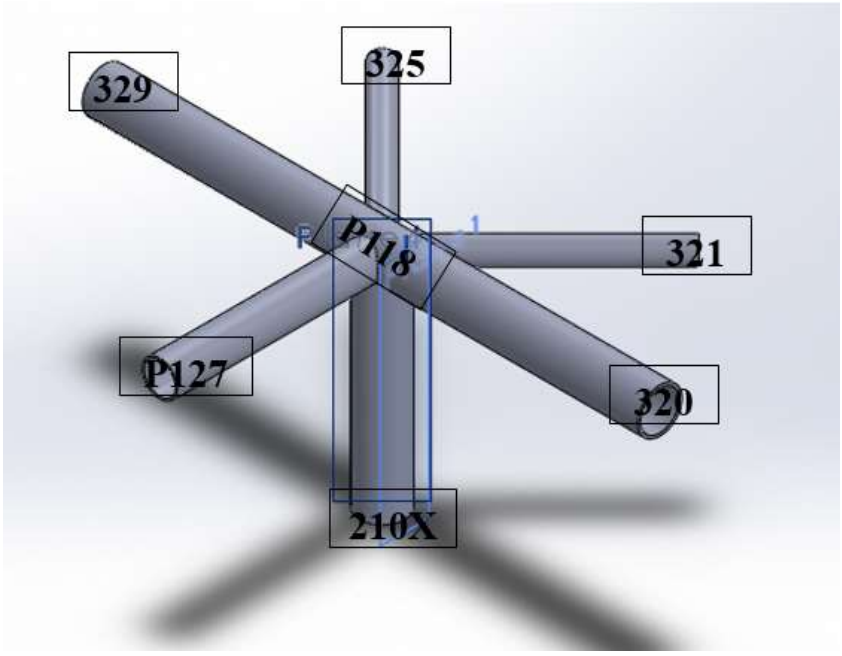
4.3 Analisa *Fatigue* dengan Menggunakan Metode *Fracture Mechanic*

4.3.1 Permodelan Lokal Joint Kritis

Hasil analisa *fatigue* menggunakan metode *cummulative damage* akan didapatkan umur kelelahan terendah yang akan dimodelkan menggunakan perangkat lunak SOLIDWORK. Joint yang digunakan dalam analisa lokal adalah joint P118. Pada Tabel 4.10 menunjukan dimensi dari joint-joint yang berhubungan dengan P118 dan Gambar 4.7 merupakan permodelan *joint* P118 menggunakan *software* SOLIDWORK.

Tabel 4. 10 *Dimensi Tubular Joint P118*

Member	Length (m)	Outside Diameter (m)	Wall Thickness (m)
P118 – 329	3.307	0.406	0.025
P118 – 325	1.682	0.219	0.015
P118 – 321	1.682	0.219	0.015
P118 – 320	3.307	0.406	0.025
P118 – P127	1.827	0.325	0.019
P118 – 210X	3.200	0.406	0.012



Gambar 4. 7 *Permodelan Joint Menggunakan SOLIDWORK*

4.3.2 Meshing

Permodelan menggunakan *software* SOLIDWORK selanjutnya akan di-*import* ke *software* ANSYS untuk dilakukan permodelan selanjutnya. Meshing adalah proses dimana mengukur keakuratan *output* dari permodelan ANSYS akibat dari penggunaan jumlah elemen.

4.3.3 Kondisi Batas dan Pembebanan

Pemberian kondisi batas yang berupa tumpuan diberikan pada ujung dari tiap member dan kondisi yang diberikan berupa *fixed support*. Setelah diberikan kondisi batas pada ujung member tersebut, selanjutkan diberikan beban pada tiap brace berupa gaya dan momen. Nilai gaya dan momen didapat dari analisa *inplace*. Pada tabel 4.11 dapat diketahui gaya dan momen yang diberikan pada tiap brace.

Tabel 4. 11 *Pembebanan Maksimum Tiap Member*

Gaya	Member					
	P118-325	P118-321	P118-P127	P118-329	P118-320	P118-210X
Mx (kN.m)	-1.108	0.784	1.26	2.12	1.29	-1.45
My (kN.m)	-7.427	1.987	-5.145	4.28	-2.56	-6.28
Mz (kN.m)	8.456	5.703	2.4569	6.234	7.391	2.972
fx (kN)	-500.12	358.18	-734.41	143.28	323.58	-421.28
fy (kN)	3.1735	1.001	45.621	2.345	5.391	30.471
fz (kN)	-734.32	-250.15	845.31	-538.192	302.18	638.18

Pada tabel 4.12 diketahui bahwa pembebanan yang diberikan pada tubular joint bernilai minimum.

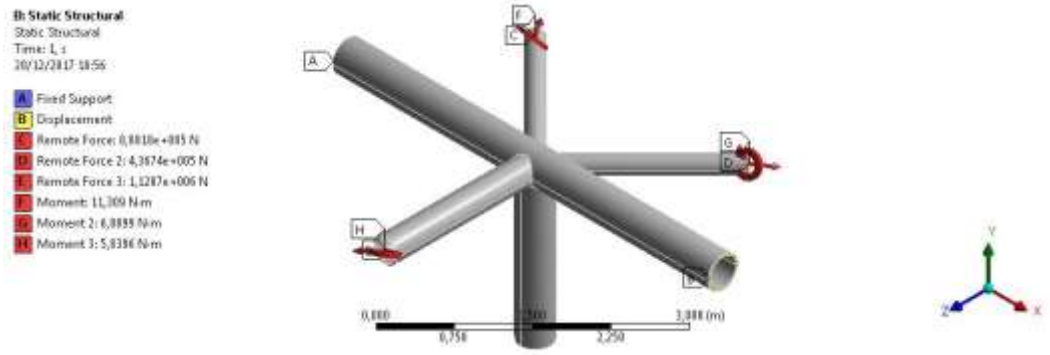
Tabel 4. 12 *Pembebanan Minimum Tiap Member*

Gaya	Member					
	P118-325	P118-321	P118-P127	P118-329	P118-320	P118-210X
Mx (kN.m)	-0.372	-0.134	0.261	1.145	0.827	-0.891
My (kN.m)	-5.382	0.573	-3.294	2.47	-1.89	-3.728

***Tabel 4. 12** Pembebanan Minimum Tiap Member*

Gaya	Member					
	P118-325	P118-321	P118-P127	P118-329	P118-320	P118-210X
Mz (kN.m)	3.182	4.883	1.748	4.28	6.128	1.679
fx (kN)	-438.92	200.183	-485.73	70.829	238.19	-418.47
fy (kN)	2.473	0.657	30.848	1.789	4.192	25.382
fz (kN)	-503.95	-210.38	604.52	-503.19	260.18	537.19

Pada gambar 4.10 menunjukan permodelan untuk pembebanan minimum yang diberikan pada member.



***Gambar 4. 8** Pembebanan Minimum dan Kondisi Batas*

4.3.4 Meshing Sensitivity

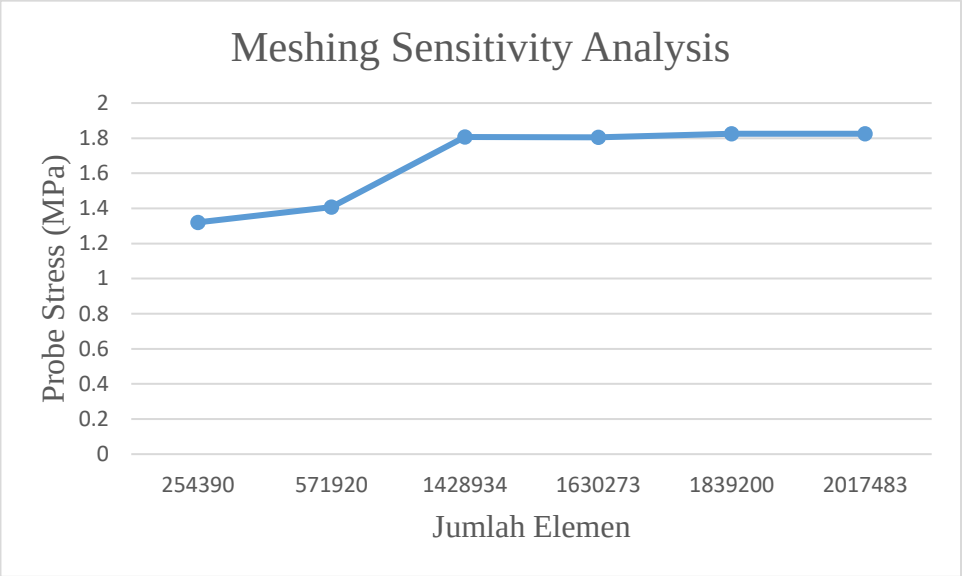
Analisis *meshing sensitivity* dilakukan untuk mengukur keakuratan dari permodelan ANSYS akibat dari penggunaan jumlah elemen. Dalam melakukan analisis model *multiplanar tubular joint* dilakukan dengan membagi model menjadi elemen-elemen kecil. Pada *meshing* ini, penulis membaginya menjadi ukuran 0.8 mm. Jenis elemen yang digunakan adalah solid dengan *node tetrahedron*. Nilai pembebanan pada analisis ini sama namun penggunaan jumlah elemen divariasikan. Pada model sambungan tubular, jumlah elemen yang digunakan bervariasi dengan nilai pembebanan yang sama. Hasil perbandingan antara ukuran elemen, jumlah elemen, dan tegangan yang terjadi pada *multiplanar tubular joint* P118 dengan tumpuan fixed pada bagian A,B, dan I dapat dilihat pada Tabel 4.13.

***Tabel 4. 13** Meshing Sensitivity*

Ukuran (mm)	Jumlah Elemen	Probe Stress (MPa)
10	254390	1.3206
5	571920	1.4078
1	1428934	1.8069

Tabel 4. 13 *Meshing Sensitivity* (Lanjutan)

Ukuran (mm)	Jumlah Elemen	Probe Stress (MPa)
0.9	1630273	1.8048
0.8	1839200	1.8253
0.7	2017483	1.8253

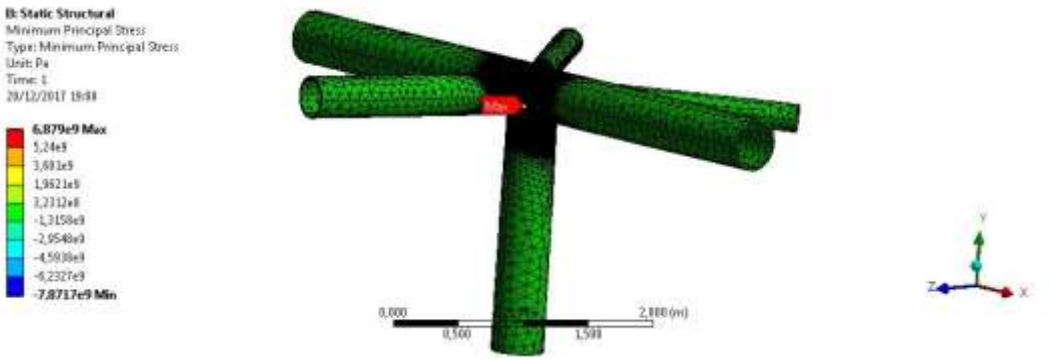


Gambar 4. 9 *Grafik Meshing Sensitivity*

Pada Gambar 4.9 didapatkan hasil nilai tegangan yang stabil untuk analisa ANSYS sebesar 1.8253 MPa dengan jumlah elemen sebanyak 2017483 elemen.

4.3.5 Posisi Retak

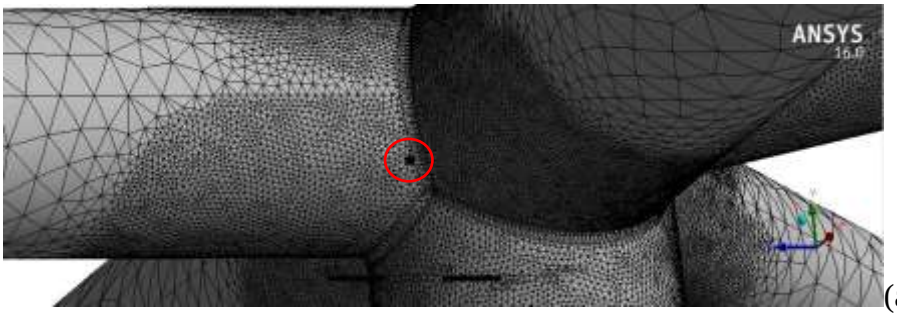
Posisi retak yang diberikan pada permodelan ditentukan dengan mencari tegangan tertinggi. Tegangan tertinggi didapat dari penjumlahan tegangan normal dan tegangan geser. Perhitungan ini mengacu pada kondisi pembebanan chord dan brace seperti pada Gambar 4.8. Hasil dari analisa dengan perangkat lunak ANSYS menunjukan tegangan maksimum terjadi pada member P118 – P127 seperti terlihat pada Gambar 4.10.



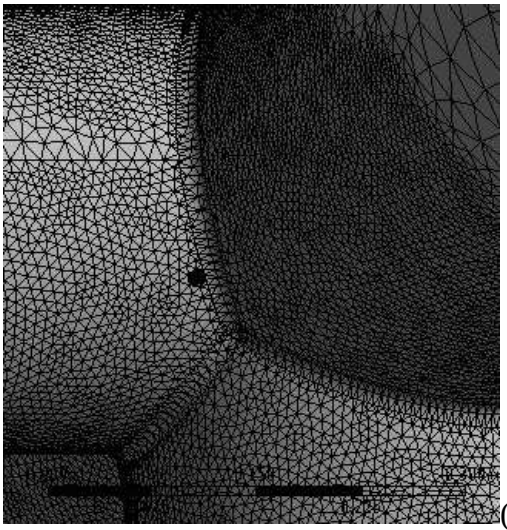
Gambar 4. 10 *Posisi Tegangan Tertinggi*

4.3.6 *Initial Crack Joint* Kritis

Pada Joint kritis tersebut, akan dimodelkan sebuah *surface crack* dengan bentuk *semi-elliptical*. Berdasarkan aturan ABS "*Guide for Fatigue Assessment of Offshore Structures*" tahun 2003 kedalaman retak (a_0) sebesar 0.5 mm dan perbandingan dari kedalaman retak (a_0) dengan panjang retak (2c) menggunakan asumsi sebesar 0.15 mm. Crack yang dimodelkan diletakan pada titik acuan yang sudah ditentukan lalu dilakukan meshing dengan ukuran 0.8 mm sesuai dengan meshing sensitivity. Pada gambar 4.11 diperlihatkan model dan meshing penambahan crack pada tubular.

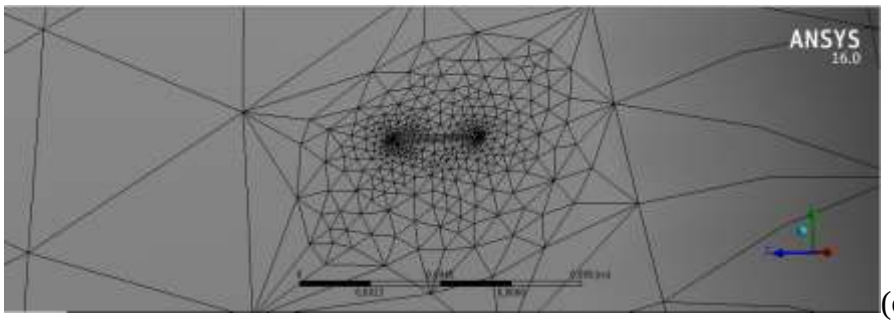


(a)

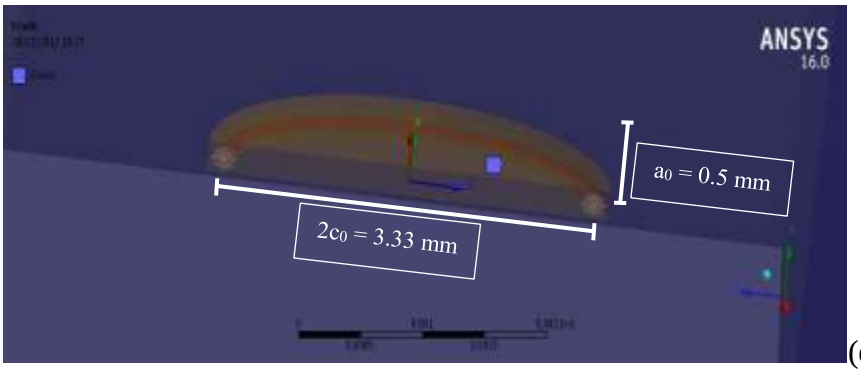


(b)

Gambar 4. 11 (a) (b) Posisi Retak Secara Global



(c)



(d)

Gambar 4. 11 *(a)(b) Posisi Retak Secara Global; (c) Bentuk Meshing pada Crack; (d) Permodelan Crack pada Titik Acuan* (Lanjutan)

4.3.7 Perhitungan SIF (*Stress Intensity Factor*)

Perhitungan pada software ANSYS dapat dilakukan pada tiap penambahan panjang sebuah *crack* sehingga didapatkan nilai SIF berbeda untuk setiap penambahan retak. Nilai SIF digunakan untuk menghitung nilai dan *crack propagation rate* hingga nilai *cycle* tertentu. Pada tabel 4.14 menunjukan nilai SIF pada *increment crack growth* sebesar 0.5 mm.

Tabel 4. 14 Nilai SIF

a (mm)	2c (mm)	K min (Mpa√mm)	K max (Mpa√mm)	ΔK (Mpa√mm)
0.50	3.33	51.77	52.57	0.80
1.00	6.67	72.16	72.97	0.81
1.50	10.00	87.30	88.37	1.07
2.00	13.33	100.05	101.27	1.21
2.50	16.67	110.28	111.57	1.28
3.00	20.00	119.21	120.61	1.40
3.50	23.33	128.52	129.98	1.45
4.00	26.66	136.00	137.49	1.49
4.50	30.00	143.92	145.43	1.52
5.00	33.33	149.94	151.68	1.74
5.50	36.66	153.88	155.74	1.86

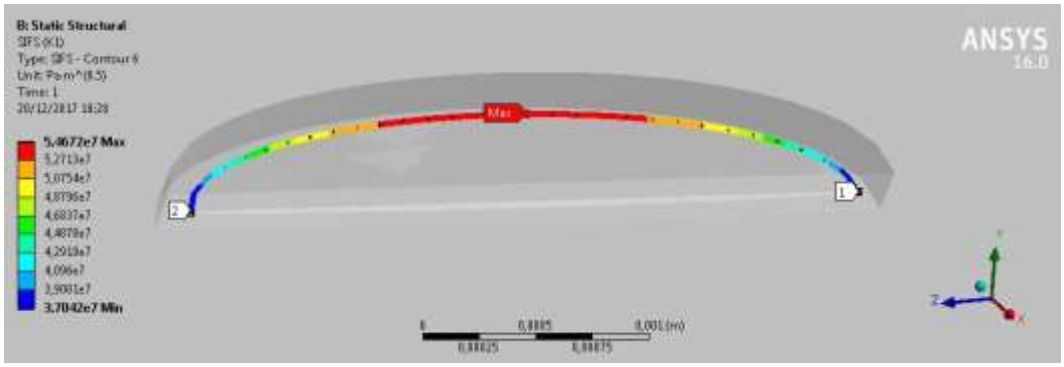
a (mm)	2c (mm)	K min (Mpa√mm)	K max (Mpa√mm)	ΔK (Mpa√mm)
6.00	40.00	161.96	163.89	1.93
6.50	43.33	166.08	168.11	2.04
7.00	46.66	169.96	172.07	2.11
7.50	50.00	172.66	174.86	2.20
8.00	53.33	177.56	179.85	2.28
8.50	56.66	186.50	188.93	2.43
9.00	60.00	191.26	193.70	2.44
9.50	63.33	196.94	199.49	2.55
10.00	66.66	204.37	206.97	2.60
10.50	70.00	212.94	215.75	2.82
11.00	73.33	217.39	220.28	2.90
11.50	76.66	226.16	229.27	3.12
12.00	80.00	231.35	234.57	3.22
12.50	83.33	239.46	242.77	3.31
13.00	86.66	243.76	247.27	3.51
13.50	90.00	252.62	256.35	3.73
14.00	93.32	260.98	265.10	4.12
14.50	96.66	270.45	275.04	4.59
15.00	100.00	279.53	284.41	4.88
15.50	103.32	286.45	291.98	5.53
16.00	106.66	295.49	301.68	6.19
16.50	110.00	300.53	306.94	6.42
17.00	113.32	308.65	315.47	6.82
17.50	116.66	316.44	323.62	7.18
18.00	120.00	322.47	329.88	7.40
18.50	123.32	329.62	337.43	7.81
19.00	126.65	338.54	346.74	8.20
19.50	130.00	346.27	354.63	8.35
20.00	133.32	350.92	359.40	8.48
20.50	136.65	359.14	367.91	8.77
21.00	140.00	364.05	372.96	8.91
21.50	143.32	368.73	377.80	9.07
22.00	146.65	376.56	386.22	9.66
22.50	150.00	382.30	392.03	9.73
23.00	153.32	389.50	399.81	10.31
23.50	156.65	393.85	403.98	10.12
24.00	160.00	399.77	410.42	10.64
24.50	163.32	401.99	412.75	10.75
25.00	166.65	406.52	417.66	11.14
25.50	170.00	411.12	422.52	11.39
26.00	173.32	419.90	431.78	11.89
26.50	176.65	426.18	438.17	11.99

Tabel 4.14 Nilai SIF (Lanjuitan)

a (mm)	2c (mm)	K min (Mpa√mm)	K max (Mpa√mm)	ΔK (Mpa√mm)
27.00	180.00	434.94	447.10	12.16
27.50	183.32	443.15	455.81	12.66
28.00	186.65	451.57	464.45	12.88
28.50	190.00	458.50	471.55	13.05
29.00	193.31	466.10	479.64	13.54
29.50	196.65	472.26	486.06	13.80
30.00	200.00	483.02	497.11	14.09
30.50	203.31	492.25	506.37	14.12
31.00	206.65	497.76	512.29	14.53
31.50	210.00	504.16	519.14	14.98
32.00	213.31	500.46	520.43	19.97
32.50	216.65	501.91	522.60	20.69

Tabel 4.14 menyatakan bahwa nilai a dimulai pada 0.5 mm yang didapat dari permisalan penulis dan nilai akhir a adalah 32.5 mm sesuai ketebalan tubular yang dianalisa. Nilai 2c pada Tabel 4.14 didapatkan dengan membagi nilai a dan $^{a}/_{2c}$ = 0.15. Nilai $^{a}/_{2c}$ didapatkan dari buku Borsom dan Rofle, 1987.

Pada Gambar 4.12 merupakan contoh hasil SIF yang didapatkan dari proses *running software* ANSYS pada retak di joint P118.



Gambar 4. 12 *Contoh Hasil SIF*

4.3.8 Validasi *Stress Intensity Factor*

Validasi perlu dilakukan untuk mengetahui nilai SIF pada *software* mendekati perhitungan analitik atau manual. Berdasarkan data geometri *crack* yang diketahui sebelumnya, akan dilakukan perhitungan manual SIF yang kemudian dibandingkan dengan perhitungan numerik dari *software* ANSYS. Persamaan tersebut dapat dilihat dapat pada bagia 4.7 (Barsom, 1997):

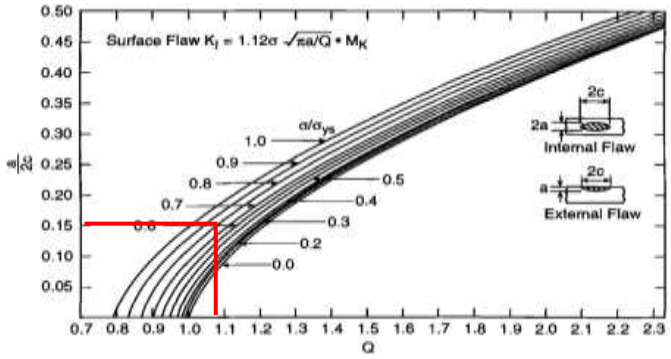
$$K_I = 1.12\sigma\sqrt{\pi\frac{a}{Q}}.M_k \qquad (4.7)$$

$$M_k = 1.0 + 1.2\left(\frac{a}{t} - 0.5\right) \quad (4.8)$$

Dimana:

M_k = Faktor koreksi *back-free surface crack* (ketika $\frac{a}{t}$ < 0.5 maka M_k=1)

Q = Faktor *front free surface crack*



Gambar 4. 13 *Grafik Parameter Q*

Dari data geometri struktur didapatkan bahwa faktor koreksi *back free crack* dengan ketebalan *chord* sebesar 32.5 dan kedalaman retak 0.5 maka didapatkan nilai M_k adalah 0.4185. Nilai ini lebih rendah dari 0.5 sehingga nilai M_k dapat diasumsikan sebesar 1.

Kemudian menentukan faktor *front free surface crack* (Q) berdasarkan Gambar 4.15 yaitu memasukan nilai $^{a}/_{2c}$ maka akan didapatkan nilai Q. Nilai yang didapatkan dari Gambar 4.13 adalah 1.08. Dengan nilai $^{\sigma}/_{\sigma_{ys}}$ sebesar 0.83 untuk tegangan maksimum dan 0.78 untuk tegangan minimum dengan perbandingan nilai $^{a}/_{2c}$ = 0.15.

Dengan beberapa parameter yang dilakukan, maka didapatkan nilai SIF menggunakan perhitungan analitis yang dapat dilihat pada Tabel 4.15.

Tabel 4. 15 *Validasi Nilai SIF*

σ/σy	0.69
a/2c	0.15
Q	1.08
M_k	0.4185
SIF Maks Manual (MPa.mm^0,5)	53.89
SIF Ansys (MPa.mm^0,5)	52.57
Error	1%
SIF Min Manual (MPa.mm^0,5)	52.47
SIF Ansys (MPa.mm^0,5)	51.77
Error	1%

4.3.9 Perhitungan Umur Kelelahan

Perhitungan umur kelelahan pada struktur didapatkan dari persamaan berikut:

$$N = \int_{a_0}^{a_f} \frac{da}{c(\Delta K)^m} \qquad (4.8)$$

Keterangan: a_0 = Kedalaman Retak Awal (initial crack)
a_f = Kedalaman Retak Akhir (final crack)
N = Jumlah Cycle
ΔK = Perubahan SIF
C & m = Konstanta Material

Pada struktur ini digunakan baja jenis A36 yang memiliki karakteristik keretakan yaitu *ferrite-pearlite steels* dengan rumus sesuai ASTM West Conshohocken:

$$da/dN = 3.6\ x\ 10^{-10}(\Delta K)^{3.0} \qquad (4.8)$$

Dengan menggunakan persamaan-persamaan diatas, maka dapat diperhitungkan umur kelelahan struktur dengan jumlah *cycle* yang didapatkan kemudian membagi dengan jumlah kejadian *cycle* pada struktur tersebut. Pada tabel 4.16 diperlihatkan jumlah *cycle* yang terjadi agar struktur mengalami kegagalan.

Tabel 4. 16 Perhitungan Jumlah *Cycle*

2c (mm)	a_0 (mm)	a_f (mm)	a avg	ΔK (Mpa√mm)	Δa/ΔN	ΔN
3.33	0.5	1	0.75	0.80	1.82026E-10	2746866576
6.67	1	1.5	1.25	0.81	1.88967E-10	2645971547
10.00	1.5	2	1.75	1.07	4.36907E-10	1144409180
13.34	2	2.5	2.25	1.21	6.43047E-10	777547835.6
16.67	2.5	3	2.75	1.28	7.60888E-10	657126648
20.01	3	3.5	3.25	1.40	9.80801E-10	509787519.3
23.34	3.5	4	3.75	1.45	1.10509E-09	452451257.8
26.68	4	4.5	4.25	1.49	1.19086E-09	419864057.4
30.01	4.5	5	4.75	1.52	1.25595E-09	398104491.8
33.35	5	5.5	5.25	1.74	1.88561E-09	265166159
36.68	5.5	6	5.75	1.86	2.31655E-09	215838379.1
40.02	6	6.5	6.25	1.93	2.60149E-09	192197302.1

2c (mm)	a_0 (mm)	a_f (mm)	a avg	ΔK (Mpa√mm)	Δa/ΔN	ΔN
43.35	6.5	7	6.75	2.04	3.04132E-09	164402204.6
46.69	7	7.5	7. 25	2.11	3.39787E-09	147151093.6
50.02	7.5	8	7.75	2.20	3.81588E-09	131031292.2
53.36	8	8.5	8.25	2.28	4.28559E-09	116670095.5
56.69	8.5	9	8.75	2.43	5.14438E-09	97193479.45
60.03	9	9.5	9.25	2.44	5.2511E-09	95218063.29
63.36	9.5	10	9.75	2.55	5.99273E-09	83434363.82
66.70	10	10.5	10.25	2.60	6.32736E-09	79021898.55
70.03	10.5	11	10.75	2.82	8.04468E-09	62152863.31
73.37	11	11.5	11.25	2.90	8.7498E-09	57144171.22
76.70	11.5	12	11.75	3.12	1.08987E-08	45877150.47
80.04	12	12.5	12.25	3.22	1.20564E-08	41471700.69
83.37	12.5	13	12.75	3.31	1.30553E-08	38298654.99
86.71	13	13.5	13.25	3.51	1.55234E-08	32209504.83
90.04	13.5	14	13.75	3.73	1.86322E-08	26835263.07
93.38	14	14.5	14.25	4.12	2.51764E-08	19859845.04
96.71	14.5	15	14.75	4.59	3.48129E-08	14362480.33
100.05	15	15.5	15.25	4.88	4.18371E-08	11951104.33
103.38	15.5	16	15.75	5.53	6.07704E-08	8227685.623
106.72	16	16.5	16.25	6.19	8.55216E-08	5846475.563
110.05	16.5	17	16.75	6.42	9.5111E-08	5257013.184
113.39	17	17.5	17.25	6.82	1.14365E-07	4371975.703
116.72	17.5	18	17.75	7.18	1.33253E-07	3752270.775
120.06	18	18.5	18.25	7.40	1.46078E-07	3422832.067
123.39	18.5	19	18.75	7.81	1.71497E-07	2915509.104
126.73	19	19.5	19.25	8.20	1.98492E-07	2518987.117
130.06	19.5	20	19.75	8.35	2.09837E-07	2382802.613
133.40	20	20.5	20.25	8.48	2.19528E-07	2277613.072
136.73	20.5	21	20.75	8.77	2.42829E-07	2059058.68
140.07	21	21.5	21.25	8.91	2.5436E-07	1965721.131
143.40	21.5	22	21.75	9.07	2.68611E-07	1861425.428
146.74	22	22.5	22.25	9.66	3.2485E-07	1539170.112
150.07	22.5	23	22.75	9.73	3.31961E-07	1506200.243
153.41	23	23.5	23.25	10.31	3.94911E-07	1266106.795
156.74	23.5	24	23.75	10.12	3.73485E-07	1338742.01
160.08	24	24.5	24.25	10.64	4.34046E-07	1151952.342
163.41	24.5	25	24.75	10.75	4.47643E-07	1116961.435
166.75	25	25.5	25.25	11.14	4.97242E-07	1005545.764
170.08	25.5	26	25.75	11.39	5.32421E-07	939107.0321
173.42	26	26.5	26.25	11.89	6.0462E-07	826965.2325
176.75	26.5	27	26.75	11.99	6.20009E-07	806440.2926

Tabel 4.16 Perhitungan Jumlah *Cycle* (Lanjutan)

2c (mm)	a_0 (mm)	a_f (mm)	a avg	ΔK (Mpa√mm)	Δa/ΔN	ΔN
180.09	27	27.5	27.25	12.16	6.47296E-07	772443.5992
183.42	27.5	28	27.75	12.66	7.30472E-07	684488.8633
186.76	28	28.5	28.25	12.88	7.69817E-07	649505.4102
190.09	28.5	29	28.75	13.05	7.99468E-07	625415.7353
193.43	29	29.5	29.25	13.54	8.94292E-07	559101.6845
196.76	29.5	30	29.75	13.80	9.45421E-07	528865.1972
200.10	30	30.5	30.25	14.09	1.00773E-06	496165.2358
203.43	30.5	31	30.75	14.12	1.01418E-06	493010.1672
206.77	31	31.5	31.25	14.53	1.10509E-06	452451.2578
210.10	31.5	32	31.75	14.98	1.21095E-06	412897.4298
213.44	32	32.5	32.25	19.97	2.86562E-06	174482.0682
216.77	32.5	33	32.75	20.69	3.19002E-06	156738.6648
					N=	11753978309

Didapatkan dari tabel 4.16 bahwa jumlah *cycle* yang terjadi agar struktur tersebut mengalami kegagalan adalah 1.17E+10. Umur kelelahan didapat dengan membagi jumlah kegagalan dengan jumlah kejadian gelombang yang dialami oleh struktur yaitu sebanyak 6.75E+7, maka didapatkan umur kelelahannya adalah 174.14 tahun atau 174 tahun.

4.3.10 Perbandingan Umur Kelelahan

Pada hasil analisa umur kelelahan dengan menggunakan metode *cummulative damage* dan *fracture mechanic* didapatkan umur yang berbeda yang dapat dilihat pada Tabel 4.17

Tabel 4. 17 *Perbandingan Umur Kelelahan*

Perbandingan Umur Kelelahan		
Metode		Selisih
Cummulative damage	*Fracture Mechanic*	
233 Tahun	174 Tahun	59 Tahun

Pada tabel dapat diketahui bahwa selisih umur kelelahan pada kedua metode tersebut adalah 59 tahun. Hal ini diakibatkan adanya retak pada pada bagian struktur yang mengurangi umur operasi struktur.

4.4 Mitigasi

4.4.1 *Joint Clamps*

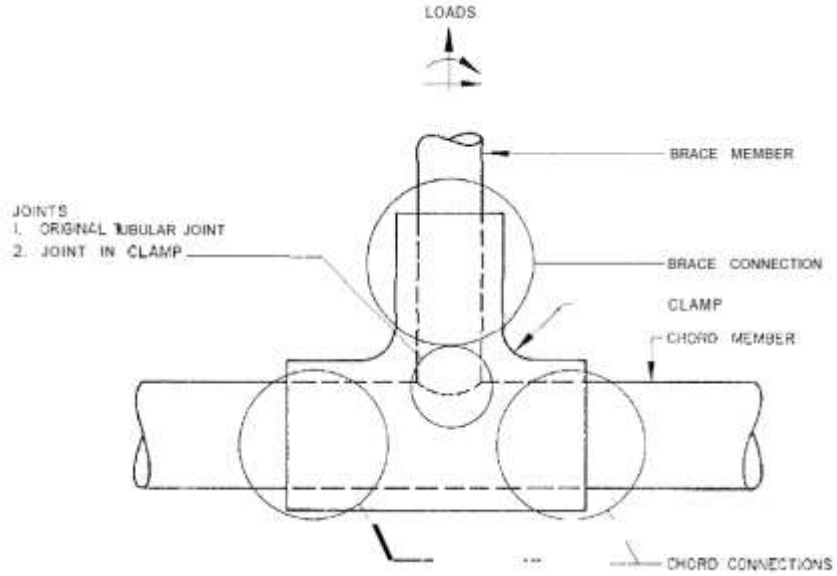
Pada mitigasi ini dilakukan dengan cara menambahkan lapiran pada bagian *joint* yang diinginkan. Tujuan dari pemasangan ini adalah melindungi bagian *joint* sehingga dapat meningkatkan kekuatannya terdapat beban gelombang yang terjadi. Penambahan lapiran ini akan mengubah umur kelelahan yang telah dianalisis.

Gambar 4. 14 *Contoh Mitigasi Mengunakan Metode Joint Clamps*

Gambar 4. 15 *Contoh Reparasi Joint Clamps*

4.4.2 Ketentuan Melakukan *Joint Clamps*

Setelah ditentukan mitigasi terhadap *joint* P118 menggunakan *joint clamps*, maka selanjutnya akan dilakukan permodelan terhadap *joint* P118 untuk menganalisa secara *cummulative damage* sehingga didapatkan umur kelelahan yang baru.



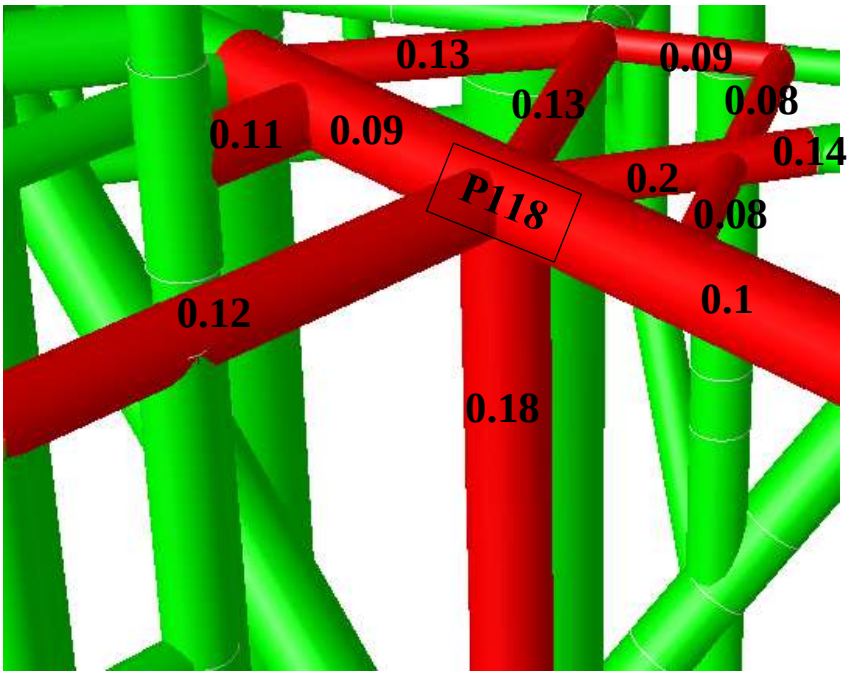
Gambar 4. 16 *Distinction between clamps and connections*

Gambar 4.16 menunjukan tubular yang telah dipasang clamps. Permodelan *joint clamps* mengacu kepada buku "*Grouted and Mechanical Strengthening and Repair of Tubular Steel Offshore Structures"*. Kriteria yang diharuskan agar *joint clamps* dapat dilakukan pada tubular adalah memiliki nilai $10 \leq \left({}^{D}/_{t}\right) \leq 45$. Pada *joint* P118 dapat dilihat parameter ${}^{D}/_{t}$ pada Tabel 4.18.

Tabel 4. 18 *Kriteria* Tubular *untuk Joint Clamps*

Member	Nilai Diameter (D) m	Nilai Ketebalan (t) m	D/t	Validasi
P118-329	0.406	0.025	16.24	Valid
P118-325	0.219	0.015	14.6	Valid
P188-321	0.219	0.015	14.6	Valid
P118-320	0.406	0.025	16.24	Valid
P118-P127	0.324	0.019	17.0526	Valid
P118-210X	0.406	0.012	33.8333	Valid

Selain kriteria dimensi yang harus dipenuhi, pengecekan UC juga perlu diperhatikan. Syarat untuk UC tidak boleh melebihi 1 pada member yang terkoneksi *joint* P118. Validasi member UC dapat dilihat pada Gambar 4.17.



Gambar 4. 17 *Unity Check pada Sambungan P118*

Setelah semua syarat terpenuhi, selanjutnya akan dilakukan penambahan ukuran pada *tubular* yang terkoneksi *joint* P118. Ketentuan yang diijinkan untuk menambahkan *joint clamps* adalah tidak boleh melebihi 0.5 in atau 12.7 mm yang mengacu kepada API RP2A "*Recommended practice for planning, designing and constructing fixed offshore platforms*", 1982.

4.4.3 Permodelan

Pada tahap ini, penulis melakukan permodelan kembali pada *joint* P118 dengan menambah ketebalan pada member yang terhubung dengan *joint* P118. Penambahan ini dilakukan sebanyak 3 kali dengan mengikuti standard dan ketentuan yang telah dijelaskan sebelumnya. Tabel 4.19 menunjukan dimensi member pada *joint* P118 yang telah ditambahkan ketebalannya.

Tabel 4. 19 *Penambahan Ketebelan Pada Mamber Joint P118*

Member	Ketebalan Awal (mm)	Ketebalan Setelah Ditambah *Joints Clamps*		
		Penambahan 2 mm	Penambahan 4 mm	Penambahan 6 mm
P118-329	25	27	29	31
P118-325	15	17	19	21

Tabel 4.19 *Penambahan Ketebalan Pada Mamber Joint P118* (Lanjutan)

Member	Ketebalan Awal (mm)	Ketebalan Setelah Ditambah *Joints Clamps*		
		Penambahan 2 mm	Penambahan 4 mm	Penambahan 6 mm
P188-321	15	17	19	21
P118-320	25	27	29	31
P118-P127	19	21	23	25
P118-210X	12	14	16	18

Setelah melakukan penambahan pada model dan dilakukan perhitungan kembali menggunakan metode *cummulative damage* pada *software* SACS tanpa mengubah elemen yang lain, maka didapatkan umur kelelahan pada *joint* P118 untuk masing-masing penambahan 2 mm, 4 mm, dan 6 mm yang dapat dilihat pada Tabel 4.20.

Tabel 4. 20 *Umur Kelelahan Setelah Penambahan Ketebalan*

Member	Penambahan Ketebalan Setiap Mamber	Umur Kelelahan
P118-329	2 mm	267.19 tahun
P118-325		
P188-321		
P118-320		
P118-P127		
P118-210X		
P118-329	4 mm	315.28 tahun
P118-325		
P188-321		
P118-320		
P118-P127		
P118-210X		
P118-329	6 mm	478.64 tahun
P118-325		
P188-321		
P118-320		
P118-P127		
P118-210X		

Hasil dari perhitungan umur lelah menggunakan metode *cummulative damage* setelah penambahan ketebalan menjadi lebih panjang. Sebelum dilakukan penambahan ketebalan, umur lelah pada *joint* P118 adalah 233 tahun. Penambahan ini menyatakan bahwa melakukan mitigasi menggunakan *joint clamps* dapat menambahkan umur lelah pada struktur.

BAB V
KESIMPULAN

5.1 Kesimpulan

Kesimpulan yang didapat dari analisis umur kelelahan YYA *Platform* antara lain:

1. Sisa umur kelelahan pada *tubular joint* P118 menggunakan metode *cummulative damage* adalah 233 tahun.
2. Sisa umur kelelahan pada *tubular joint* P118 menggunakan metode *fracture mechanic* adalah 174 tahun.
3. Cara untuk memperpanjang umur pada *tubular joint* P118 adalah menggunakan *joint clamps*. Setelah dilakukan perhitungan ulang dengan penambahan ketebalan pada tubular sebagai permisalan bahwa diberikan *joint clamps* didapatkan umur kelelahan dari struktur menjadi lebih panjang.

5.2 Saran

Berdasarkan kesimpulan diatas, penulis mencoba memberikan saran untuk penelitian selanjutnya yang ingin mengembangkan obyek bahasan tugas akhir seperti ini dapat difokuskan pada:

1. Jikalau ada data yang lebih lengkap, peneliti selanjutnya bisa menggunakan metode spectral untuk melakukan analisa umur kelelahan menggunakan *cummulative damage.*
2. Peneliti selanjutnya dapat menggunakan mode I dalam penentuan nilai SIF namun dengan memvariasikan nilai $^{a}/_{2c}$ selain 0.15 mm.
3. Peneliti selanjutnya membedakan bentuk retak yang digunakan dalam analisa dimana penulis menggunakan bentuk retak *semi-eliptical*.
4. Peneliti selanjutnya dapat memvariasikan *increment crack growth* dengan nilai selain 0.5 mm.
5. Peneliti selanjutnya dapat melalukan analisa kembali pada struktur yang telah dilakukan mitigasi dengan memodelkan *joint* P118 dan melakukan analisa menggunakan metode *fracture mechanic*.

(Halaman ini sengaja dikosongkan)

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DAFTAR LAMPIRAN

LAMPIRAN A. MODEL STRUCTURE

A. MODEL STRUCTURE

LAMPIRAN B. SACS Input List

B.1 SACS Model Input

```
     JACKET DEFINITION
*LDOPT SF    NF+Z64.20000490.0000 -62.000  62.000GLOBEN       FLDCMBMPTNP      K
OPTIONS      EN       SDAAJT 2 1   DC  C    PTPTPTPTPTPTPTPT
UCPART         0.8000.8001.0001.000
SECT
SECT BX1       PGB                              10.0000.56212.0000.375     .375
SECT VSC       CON                              8.625 0.5005.563 0.500
SECT VTC       CON                              5.563 0.3124.500 0.3120.312
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GRUP A01         16.000 0.750 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP A02          8.625 0.625 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP A11         16.000 1.000 29.0011.2050.00 1    1.001.00     0.500 490.00
GRUP B01         16.000 0.750 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP B02          8.625 0.625 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP B11         16.000 1.000 29.0011.2050.00 1    1.001.00     0.500 490.00
GRUP BL1         20.000 0.875 29.0011.2050.00 1    1.001.00     0.500 490.00
GRUP BL2         20.000 0.750 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP BL3         10.750 0.500 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP BL4          8.625 0.250 29.0011.2035.00 1    1.001.00     0.500 1.68+3
GRUP BL5          6.625 0.250 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP BL6         10.750 0.375 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP BR1         20.000 0.625 29.0011.6036.00 1    1.001.00     0.500 490.00
GRUP BR1         20.000 1.000 29.0011.6036.00 1    1.001.00     0.500 490.003.00
GRUP BR2         16.000 0.375 29.0011.6036.00 1    1.001.00     0.500N490.00
GRUP C01         16.000 0.750 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP C02          8.625 0.750 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP C03          8.625 0.500 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP C04          8.625 0.250 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP C05         10.750 0.375 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP C06          6.625 0.375 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP C11         16.000 1.125 29.0011.2050.00 1    1.001.00     0.500 490.00
GRUP C15         10.750 0.250 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP C16          6.625 0.250 29.0011.2035.00 1    1.001.00     0.500 490.00
GRUP CD1 W27X194              29.0011.2050.00 1    1.001.00           490.00
GRUP CD2 W12X35               29.0011.2050.00 1    1.001.00           490.00
GRUP CG1         16.000 0.438 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP CRP        X36.000 1.000 29.0011.6036.00 1    2.002.00     0.500 490.00
```

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GRUP CS2        X36.000 1.000 29.0011.6036.00 1    1.801.80     0.500 596.90
GRUP DL0        X36.000 1.000 29.0011.6036.00 1    1.801.80     0.500 490.00
GRUP DL0        X36.000 1.250 29.0011.6036.00 1    1.801.80     0.500 490.001.00
GRUP DL1        X36.000 1.250 29.0011.6036.00 1    1.801.80     0.500 490.00
GRUP DL2        X36.000 1.000 29.0011.6036.00 1    1.801.80     0.500 490.00
GRUP DL3        X36.000 1.000 29.0011.6036.00 1    1.801.80     0.500 490.00
GRUP DL4        X36.000 1.000 29.0011.6036.00 1    1.801.80     0.500 490.00
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GRUP L01         40.000 1.000 29.0011.2036.00 1    1.001.00          F490.00
GRUP L02         40.000 1.000 29.0011.2036.00 1    1.001.00          F490.00
GRUP L02         40.000 1.250 29.0011.2050.00 1    1.001.00          F490.004.50
GRUP L03         40.000 1.250 29.0011.2050.00 1    1.001.00          F490.005.00
GRUP L03         40.000 1.000 29.0011.2036.00 1    1.001.00          F490.00
GRUP L04         40.000 1.125 29.0011.2036.00 1    1.001.00          F490.00
GRUP L05         40.000 1.125 29.0011.2036.00 1    1.001.00          F490.00
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GRUP PL1        X36.000 1.000 29.0011.2050.00 1    1.001.00          F490.00
GRUP PL2        X36.000 1.000 29.0011.2050.00 1    1.001.00          F490.00
GRUP PL3        X36.000 1.000 29.0011.2050.00 1    1.001.00          F490.00
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GRUP RP0         12.750 0.750 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP RP1         10.750 0.500 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP RP2         10.750 0.625 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP RP3          8.625 0.250 29.0011.2036.00 1    1.001.00     0.500 490.00
GRUP RS1         12.750 0.375 29.0011.2036.00 1    1.001.00     0.500 490.00
```

```
GRUP S01         12.750 0.750 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP S02          8.625 0.250 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP S03         10.750 0.375 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP SC1 W8X31                29.0011.6036.00 1    1.001.00           490.00

GRUP SC2 W6X15                29.0011.2036.00 1    1.001.00           490.00

GRUP TR1        X36.000 0.875 29.0011.6050.00 1    1.801.80     0.500 490.00

GRUP V01         16.000 0.625 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP V02         20.000 0.500 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP V03         16.000 0.500 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP V12         20.000 0.625 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP V13         16.000 0.625 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP V22         20.000 0.875 29.0011.2050.00 1    1.001.00     0.500 490.00

GRUP V23         16.000 0.875 29.0011.2050.00 1    1.001.00     0.500 490.00

GRUP VS1 BX1                  29.0011.2050.00 1    1.001.00           490.00

GRUP VS2          8.625 0.500 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP VS3          4.500 0.312 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP VS4          8.625 0.500 29.0011.2036.00 1    1.001.00     0.500 490.00.500

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GRUP VT1          5.563 0.312 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP VT2          5.563 0.312 29.0011.2036.00 1    1.001.00     0.500 490.002.00

GRUP VT2 VTC                  29.0011.2036.00 1    1.001.00           490.00.500

GRUP VT2          4.500 0.312 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP VT3          4.500 0.312 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP VT4          3.500 0.216 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP VT5          3.500 0.216 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP W.B         37.000 0.250 29.0011.2036.00 1    1.001.00          F1.00-3

GRUP WB1         14.000 0.375 29.0011.2036.00 9    1.001.00     0.500 490.00

GRUP WB2         32.000 0.875 29.0011.2036.00 1    1.001.00     0.500 490.00

GRUP WH1 W6X25                29.0011.6036.00 1    1.001.00          N490.00

GRUP WH2 C6X8                 29.0011.2036.00 1    1.001.00           490.00

GRUP WH3 T040403              29.0011.2036.00 1    1.001.00           490.00

GRUP MD3 W18X50               29.0011.6050.00 1    1.001.00           490.00

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MEMBER 101LM024 A01                90.00RJ01      9.864.93

MEMBER 101LM044 A01                90.00RJ01      17.28.63

MEMBER 102LM045 A01                90.00RJ01      17.28.63

MEMBER M024M025 A01                90.00RJ01      13.76.90

MEMBER M025M026 A01                90.00RJ01      13.76.90
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MEMBER M026M027 A01 90.00RJ01 13.76.90

MEMBER M027M028 A01 90.00RJ01 13.76.90

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MEMBER M033M034 A01 90.00RJ01 16.18.06

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MEMBER M036M037 A01 90.00RJ01 13.76.90

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MEMBER M038102L A01 90.00RJ01 9.864.93

MEMBER M044M053 A01 90.00RJ01 9.114.55

MEMBER M045M068 A01 90.00RJ01 9.114.55

MEMBER M053M072 A01 90.00RJ01 28.414.2

MEMBER M068M073 A01 90.00RJ01 28.414.2

MEMBER M072M081 A01 90.00RJ01 7.553.77

MEMBER M073M094 A01 90.00RJ01 7.553.77

MEMBER M081M098 A01 90.00RJ01 80.040.0

MEMBER M094M099 A01 90.00RJ01 80.040.0

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MEMBER M099M105 A01 90.00RJ01 9.474.73

MEMBER M124M131 A01 90.00RJ01 12.41.58

MEMBER M125M138 A01 90.00RJ01 12.41.58

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MEMBER M138M143 A01 95.515.4

MEMBER M142M149 A01 90.00RJ01 6.901.79

MEMBER M143M150 A01 90.00RJ01 6.901.11

MEMBER M149M156 A01 157.41.0

MEMBER M150M158 A01 90.00RJ01 157.25.4

MEMBER M156M161 A01 90.00RJ01 64.316.7

MEMBER M158M162 A01 90.00RJ01 64.36.35

MEMBER M161M168 A01 90.00RJ01 12.03.13

MEMBER M162M171 A01 90.00RJ01 12.01.18

MEMBER M168M176 A01 90.00RJ01 27.03.03

MEMBER M171M177 A01 90.00RJ01 27.03.03

MEMBER M176103L A01 90.00RJ01 13.21.49

MEMBER M177103L A01 90.00RJ01 13.21.49

MEMBER M031M046 A02 90.00RJ01 6.906.90

MEMBER M031M047 A02 90.00RJ01 6.906.90

MEMBER M046M059 A02 90.00RJ01 5.255.25

MEMBER M047M062 A02 90.00RJ01 5.255.25

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MEMBER M075M090 A02                90.00RJ01      4.244.24

MEMBER M085M100 A02                90.00RJ01      19.019.0

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MEMBER M114M115 A02                90.00RJ01      6.906.90

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MEMBER M117M118 A02                90.00RJ01      6.906.90

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MEMBER M029M030 A11                90.00RJ01      95.647.8

MEMBER M030M031 A11                90.00RJ01      27.513.7

MEMBER M031M032 A11                90.00RJ01      27.513.7

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MEMBER M105M107 A11                90.00RJ01      25.312.6

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MEMBER M107M119 A11                               137.68.6

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MEMBER M119M125 A11                90.00RJ01      21.42.72

MEMBER 203 202L B01                90.00RJ02      2.241.12

MEMBER 214 216  B01                90.00RJ02      15.17.31

MEMBER 215 221  B01                90.00RJ02      6.993.37

MEMBER 216 222  B01                90.00RJ02      9.794.72

MEMBER 221 223  B01                90.00RJ02      39.919.2

MEMBER 222 224  B01                90.00RJ02      11.15.39

MEMBER 223 227  B01                90.00RJ02      11.15.39

MEMBER 224 228  B01                90.00RJ02      64.130.9

MEMBER 227 229  B01                90.00RJ02      64.130.9

MEMBER 228 203L B01                90.00RJ02      8.734.21

MEMBER 229 203L B01                90.00RJ02      8.734.21

MEMBER 201L201  B01                90.00RJ02      2.241.12

MEMBER 201L204  B01                90.00RJ02      2.151.07

MEMBER 202L205  B01                90.00RJ02      2.151.07
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MEMBER 206 207  B02                90.00RJ02      2.622.62

MEMBER 207 208  B02                90.00RJ02      5.385.38

MEMBER 208 209  B02                90.00RJ02      2.622.62

MEMBER 201 202  B11                90.00RJ02      18.59.25

MEMBER 202 203  B11                90.00RJ02      18.59.25

MEMBER 204 206  B11                90.00RJ02      18.59.25

MEMBER 205 209  B11                90.00RJ02      18.59.25

MEMBER 206 210  B11                90.00RJ02      19.89.58

MEMBER 209 213  B11                90.00RJ02      19.89.58

MEMBER 210 214  B11                90.00RJ02      22.510.8

MEMBER 213 215  B11                90.00RJ02      22.510.8

MEMBER114012B03 BL1                               2.002.00

MEMBER OFFSETS                                      -0.379-20.21

MEMBER114022B04 BL1

MEMBER OFFSETS                                       0.376-20.21

MEMBER 2B012P08 BL1                               1.002.00

MEMBER 2B022P09 BL1                               2.002.00

MEMBER 10011101 BL2                               3.111.00

MEMBER 10021102 BL2                               3.111.00

MEMBER 11011201 BL2                               3.111.00

MEMBER 11021202 BL2                               3.111.00

MEMBER 12011301 BL2                               2.801.00

MEMBER112021402 BL2                               2.80

MEMBER OFFSETS                                                    -10.00

MEMBER113011401 BL2

MEMBER OFFSETS                                                    -10.00

MEMBER 2P081001 BL2

MEMBER 2P091002 BL2

MEMBER110011005 BL3                               4.70.900

MEMBER OFFSETS                    10.376

MEMBER110031012 BL3                               38.09.00

MEMBER OFFSETS                     5.714-2.2-4

MEMBER 10051006 BL3                               10.41.00

MEMBER 10061007 BL3                               10.41.00

MEMBER 10071008 BL3                               10.42.00

MEMBER 10081009 BL3                               10.42.00

MEMBER 10091010 BL3                               10.41.00
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MEMBER 10101011 BL3                              10.41.00
MEMBER110111002 BL3                              4.70.900
MEMBER OFFSETS                                     -10.381.71-4
MEMBER 10121013 BL3                              8.442.00
MEMBER 10131014 BL3                              8.442.00
MEMBER 10141015 BL3                              8.442.00
MEMBER 10151016 BL3                              8.442.00
MEMBER 10161017 BL3                              8.442.00
MEMBER 10171018 BL3                              8.442.00
MEMBER 10181019 BL3                              8.442.00
MEMBER 10191020 BL3                              8.442.00
MEMBER110201004 BL3                              38.09.00
MEMBER OFFSETS                                     -5.7142.33-4
MEMBER111011105 BL3                              4.70.900
MEMBER OFFSETS                    9.875-4.2-4
MEMBER111031112 BL3                              38.09.00
MEMBER OFFSETS                    5.714-2.2-4
MEMBER 11051106 BL3                              10.41.00
MEMBER 11061107 BL3                              10.41.00
MEMBER 11071108 BL3                              10.42.00
MEMBER 11081109 BL3                              10.42.00
MEMBER 11091110 BL3                              10.4.900
MEMBER 11101111 BL3                              10.4.900
MEMBER111111102 BL3                              4.701.00
MEMBER OFFSETS                                     -9.8754.31-4
MEMBER 11121113 BL3                              8.442.00
MEMBER 11131114 BL3                              8.442.00
MEMBER 11141115 BL3                              8.442.00
MEMBER 11151116 BL3                              8.442.00
MEMBER 11161117 BL3                              8.442.00
MEMBER 11171118 BL3                              8.442.00
MEMBER 11181119 BL3                              8.442.00
MEMBER 11191120 BL3                              8.442.00
MEMBER111201104 BL3                              19.09.00
MEMBER OFFSETS                                     -5.7142.33-4
MEMBER112011205 BL3                              4.70.900
MEMBER OFFSETS                    9.875-4.2-4
MEMBER112031212 BL3                              38.09.00
MEMBER OFFSETS                    5.714-2.2-4
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MEMBER 12051206 BL3                              10.41.00

MEMBER 12061207 BL3                              10.41.00

MEMBER 12071208 BL3                              10.42.00

MEMBER 12081209 BL3                              10.42.00

MEMBER 12091210 BL3                              10.42.00

MEMBER 12101211 BL3                              10.42.00

MEMBER112111202 BL3                              4.70.900

MEMBER OFFSETS                                     -9.8754.31-4

MEMBER 12121213 BL3                              8.442.00

MEMBER 12131214 BL3                              8.442.00

MEMBER 12141215 BL3                              8.442.00

MEMBER 12151216 BL3                              8.442.00

MEMBER 12161217 BL3                              8.442.00

MEMBER 12171218 BL3                              8.442.00

MEMBER 12181219 BL3                              8.442.00

MEMBER 12191220 BL3                              8.442.00

MEMBER112201204 BL3                              38.09.00

MEMBER OFFSETS                                     -5.7142.33-4

MEMBER113011305 BL3                              2.351.00

MEMBER OFFSETS                     9.875-4.2-4

MEMBER113031309 BL3                              19.01.00

MEMBER OFFSETS                     5.714-2.2-4

MEMBER 13051306 BL3                              5.221.00

MEMBER 13061307 BL3                              5.221.00

MEMBER113071308 BL3                              5.221.00

MEMBER OFFSETS                                     -4.188

MEMBER 13091310 BL3                              4.222.00

MEMBER 13101311 BL3                              4.222.00

MEMBER 13111316 BL3                              4.222.00

MEMBER 13161312 BL3                              4.222.00

MEMBER110031103 BL4                              3.111.00

MEMBER OFFSETS                                 5.250           -5.250

MEMBER110041104 BL4                              2.001.00

MEMBER OFFSETS                                 5.250           -5.250

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MEMBER 10061106 BL4                              3.111.00

MEMBER 10071107 BL4                              3.111.00

MEMBER 10081108 BL4                              3.111.00

MEMBER 10091109 BL4                              2.001.00
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MEMBER 10101110 BL4                          2.001.00

MEMBER 10111111 BL4                          2.001.00

MEMBER110121112 BL4                          3.11

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MEMBER110131113 BL4                          3.111.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110141114 BL4                          3.111.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110151115 BL4                          3.111.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110161116 BL4                          3.111.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110171117 BL4                          2.001.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110181118 BL4                          2.001.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110191119 BL4                          2.001.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER110201120 BL4                          2.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER111031203 BL4                          3.111.00

MEMBER OFFSETS                          5.250          -5.250

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MEMBER111051205 BL4                          3.111.00

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MEMBER111091209 BL4                          2.001.00

MEMBER OFFSETS                          5.250          -5.250

MEMBER111101210 BL4                          2.001.00

MEMBER OFFSETS                          5.250          -5.250

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MEMBER111121212 BL4                          3.11
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MEMBER OFFSETS                                  5.250           -5.250

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MEMBER111161216 BL4                               3.111.00

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MEMBER111171217 BL4                               2.001.00

MEMBER OFFSETS                                  5.250           -5.250

MEMBER111181218 BL4                               2.001.00

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MEMBER111191219 BL4                               2.001.00

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MEMBER111201220 BL4                               2.00

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MEMBER112031303 BL4                               2.801.00

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MEMBER112061306 BL4                               2.801.00

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MEMBER112071307 BL4                               2.801.00

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MEMBER112081308 BL4                               2.801.00

MEMBER OFFSETS                                  5.250           -4.188

MEMBER112121309 BL4                               2.80

MEMBER OFFSETS                                  5.250           -5.250

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MEMBER112151316 BL4                               2.801.00

MEMBER OFFSETS                                  5.250           -5.250

MEMBER112161312 BL4                               2.801.00

MEMBER OFFSETS                                  5.250           -5.250

MEMBER110031101 BL5

MEMBER OFFSETS                    -2.437 5.663 5.250 3.903-9.071-8.409
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MEMBER110041102 BL5

MEMBER OFFSETS 2.437 5.663 5.250-3.903-9.071-8.409

MEMBER110051113 BL5

MEMBER OFFSETS -3.850 3.569 3.850-3.569

MEMBER110061114 BL5

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MEMBER110071115 BL5

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MEMBER110081016 BL5 1.001.00

MEMBER OFFSETS 1.82-4-5.250 -1.8-4 5.250

MEMBER110081116 BL5

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MEMBER110091117 BL5

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MEMBER110101118 BL5

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MEMBER110111119 BL5

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MEMBER110121005 BL5 1.001.00

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MEMBER110141005 BL5

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MEMBER110141006 BL5

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MEMBER110161007 BL5

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MEMBER111021204 BL5

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MEMBER111181109 BL5

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MEMBER111181111 BL5

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MEMBER111191211 BL5

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MEMBER112051310 BL5

MEMBER OFFSETS -4.6-4-3.657 3.7674.60-4 3.657-3.767

MEMBER112061311 BL5

MEMBER OFFSETS -4.6-4-3.657 3.7674.60-4 3.657-3.767

MEMBER112081312 BL5

MEMBER OFFSETS -4.6-4-3.657 3.7674.60-4 3.657-3.767

MEMBER112121205 BL5 1.001.00

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MEMBER112141205 BL5

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MEMBER112141206 BL5

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MEMBER112161208 BL5 1.001.00

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MEMBER112171209 BL5

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MEMBER112181210 BL5 1.001.00

MEMBER OFFSETS -1.8-4 5.250 1.82-4-5.250

MEMBER112181211 BL5 1.001.00

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MEMBER112191211 BL5

MEMBER OFFSETS -1.8-4 5.250 1.82-4-5.250

MEMBER112201211 BL5 1.001.00

MEMBER OFFSETS -3.245 5.250 3.245-5.250

MEMBER113051311 BL5 1.001.00

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MEMBER OFFSETS                     3.245-5.250      -3.245 5.250

MEMBER113071313 BL5                              2.001.00

MEMBER OFFSETS                    -1.8-4 5.250            -4.188

MEMBER 13081315 BL5                              10.05.02

MEMBER113091305 BL5                              1.001.00

MEMBER OFFSETS                     3.245 5.250      -3.245-5.250

MEMBER113101305 BL5

MEMBER OFFSETS                    -1.8-4 5.250      1.82-4-5.250

MEMBER113111306 BL5

MEMBER OFFSETS                    -1.8-4 5.250      1.82-4-5.250

MEMBER113111307 BL5                              1.001.00

MEMBER OFFSETS                     3.245 5.250      -3.245-5.250

MEMBER113121307 BL5                              1.001.00

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MEMBER OFFSETS                    -1.8-4 5.250

MEMBER113131314 BL5                              1.001.00

MEMBER OFFSETS                                     -4.188

MEMBER 13151314 BL5                              2.491.24

MEMBER113161307 BL5                              1.001.00

MEMBER OFFSETS                    -1.8-4 5.250      1.82-4-5.250

MEMBER110011003 BL6                              1.001.00

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MEMBER110041002 BL6                              1.001.00

MEMBER OFFSETS                                     -6.305-14.65

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MEMBER112011203 BL6                              1.001.00

MEMBER OFFSETS                     3.903-9.071

MEMBER112041202 BL6                              1.001.00

MEMBER OFFSETS                                     -3.903-9.071

MEMBER113011303 BL6                              1.001.00

MEMBER OFFSETS                     3.903-9.071

MEMBER 3L041535 BR1

MEMBER 3L031536 BR1

MEMBER 513L1535 BR1

MEMBER 513L1536 BR1
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MEMBER 15353172 BR2

MEMBER 153560C3 BR2

MEMBER 15363168 BR2

MEMBER 153660C3 BR2

MEMBER 305 306  C01               90.00RJ03     23.511.3

MEMBER 306 307  C01               90.00RJ03     8.354.02

MEMBER 307 308  C01               90.00RJ03     13.36.44

MEMBER 308 309  C01               90.00RJ03     8.804.24

MEMBER 311 345  C01               90.00RJ03     4.592.21

MEMBER 315 320  C01               90.00RJ03     8.564.12

MEMBER 320 323  C01               90.00RJ03     21.610.4

MEMBER 329 331  C01               90.00RJ03     14.87.15

MEMBER 330 P021 C01               90.00RJ03     7.773.74

MEMBER 331 P121 C01               90.00RJ03     16.37.86

MEMBER 336 338  C01               90.00RJ03     33.216.0

MEMBER 337 339  C01               90.00RJ03     9.324.49

MEMBER 338 342  C01               90.00RJ03     9.324.49

MEMBER 339 343  C01               90.00RJ03     53.426.7

MEMBER 342 344  C01               90.00RJ03     53.425.7

MEMBER 343 303L C01               90.00RJ03     7.283.50

MEMBER 344 303L C01               90.00RJ03     7.283.50

MEMBER 345 302L C01               90.00RJ03     4.592.21

MEMBER 349 351  C01               90.00RJ03     6.853.30

MEMBER 351 324  C01               90.00RJ03     15.97.70

MEMBER 301L305  C01               90.00RJ03     11.85.69

MEMBER 301L315  C01               90.00RJ03     3.931.89

MEMBER 302L349  C01               90.00RJ03     4.792.31

MEMBER P021336  C01               90.00RJ03     32.015.4

MEMBER P121337  C01               90.00RJ03     16.37.86

MEMBER 310 314  C02               90.00RJ03     3.231.00

MEMBER 310 346  C02               90.00RJ03     3.29

MEMBER 314 317  C02               90.00RJ03     4.381.00

MEMBER 317 319  C02               90.00RJ03     6.611.00

MEMBER 319 321  C02               90.00RJ03     12.31.00

MEMBER 321 P118 C02               90.00RJ03     4.331.00

MEMBER 325 326  C02                             22.24.12

MEMBER 326 327  C02                   RJ03      4.564.56

MEMBER 327 356  C02                   RJ03      22.22.56

MEMBER 346 348  C02               90.00RJ03     4.60
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MEMBER 348 350  C02                90.00RJ03      4.60

MEMBER 350 P018 C02                90.00RJ03      3.80

MEMBER 356 P018 C02                     RJ03      2.892.56

MEMBER P118325  C02                               2.892.56

MEMBER1326 332  C03                90.00RJ03      2.921.00

MEMBER OFFSETS                    1.00-3 4.313

MEMBER1327 333  C03                90.00RJ03      2.921.00

MEMBER OFFSETS                    1.00-3 4.313

MEMBER 332 334  C03                90.00RJ03      4.141.00

MEMBER 333 335  C03                90.00RJ03      4.141.00

MEMBER1334 340  C03                90.00RJ03      2.921.00

MEMBER OFFSETS                                      -1.0-3-4.313

MEMBER1335 341  C03                90.00RJ03      2.921.00

MEMBER OFFSETS                                      -1.0-3-4.313

MEMBER1339 340  C03                     RJ03      7.331.00

MEMBER OFFSETS                    9.238-1.7-4

MEMBER 340 341  C03                90.00RJ03      1.371.00

MEMBER1341 342  C03                90.00RJ03      22.222.2

MEMBER OFFSETS                                      -9.2381.70-4

MEMBER 314 346  C04

MEMBER 325 P121 C04                     RJ03

MEMBER1332 333  C04                90.00RJ03      1.001.00

MEMBER OFFSETS                    4.313-1.0-3      -4.3131.00-3

MEMBER1334 335  C04                90.00RJ03      1.001.00

MEMBER OFFSETS                    4.313-1.0-3      -4.3131.00-3

MEMBER1335 336  C04                90.00RJ03      1.001.00

MEMBER OFFSETS                    4.313-1.0-3      -9.2381.70-4

MEMBER 356 P021 C04                     RJ03

MEMBER 301 303  C05                90.00RJ03      4.722.36

MEMBER 302 304  C05                90.00RJ03      4.722.36

MEMBER 303 305  C05                90.00RJ03      3.461.73

MEMBER 304 307  C05                90.00RJ03      3.461.73

MEMBER 306 312  C06                90.00RJ03      1.731.00

MEMBER 308 313  C06                90.00RJ03      2.261.00

MEMBER 312 315  C06                90.00RJ03      2.361.00

MEMBER 313 316  C06                90.00RJ03      2.95.956

MEMBER 314 318  C06                90.00RJ03      3.021.00

MEMBER 316 319  C06                90.00RJ03      4.551.00

MEMBER 318 322  C06                90.00RJ03      2.971.00
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MEMBER 322 325  C06                90.00RJ03      2.991.00

MEMBER 345 347  C06                     RJ03      2.00

MEMBER 347 349  C06                     RJ03      2.00

MEMBER 349 352  C06                     RJ03      4.00

MEMBER 351 353  C06                     RJ03      4.00

MEMBER 352 354  C06                     RJ03      4.00

MEMBER 353 355  C06                     RJ03      4.00

MEMBER 309 310  C11                90.00RJ03      15.47.43

MEMBER 310 311  C11                90.00RJ03      15.47.43

MEMBER 323 P118 C11                90.00RJ03      15.47.43

MEMBER 324 P018 C11                     RJ03      15.47.43

MEMBER P018330  C11                90.00RJ03      15.47.43

MEMBER P118329  C11                90.00RJ03      15.47.43

MEMBER 301 302  C15                90.00RJ03      1.001.00

MEMBER 303 304  C15                90.00RJ03      1.001.00

MEMBER 312 313  C16                90.00RJ03      1.001.00

MEMBER 313 314  C16

MEMBER1315 316  C16                90.00RJ03      1.001.00

MEMBER OFFSETS                           1.594

MEMBER 317 318  C16                90.00RJ03      1.00

MEMBER 320 321  C16                90.00RJ03          1.00

MEMBER 321 322  C16                90.00RJ03      1.001.00

MEMBER 345 346  C16                     RJ03      1.00

MEMBER 347 348  C16                     RJ03      .998

MEMBER 349 350  C16                     RJ03      .996

MEMBER 352 353  C16                     RJ03      1.00

MEMBER 354 355  C16                     RJ03      1.00

MEMBER130033018 CD1                           L    24.04.084.083

MEMBER OFFSETS                                -14.05            -14.05

MEMBER130133028 CD1                           L    24.04.084.083

MEMBER OFFSETS                                -14.05            -14.05

MEMBER130183033 CD1                           L    24.03.913.917

MEMBER OFFSETS                                -14.05            -14.05

MEMBER130283043 CD1                           L    24.03.913.917

MEMBER OFFSETS                                -14.05            -14.05

MEMBER130333L01 CD1                           L    24.04.004.000

MEMBER OFFSETS                                -14.05            -14.05

MEMBER130433L02 CD1                           L    24.04.004.000

MEMBER OFFSETS                                -14.05            -14.05
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MEMBER130463047 CD1                         L    10.05.005.000

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130473L01 CD1                         L    10.05.005.000

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130493050 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130503051 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130513052 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130523053 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130533054 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130543055 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130553056 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130563057 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130573058 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130583L02 CD1                         L    30.030.030.00

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130603061 CD1                         L    11.05.505.500

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130683093 CD1                         L    25.925.925.98

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130693088 CD1                         L    29.929.929.99

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130783090 CD1                         L    29.929.929.99

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130793105 CD1                         L    25.925.925.98

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130883096 CD1                         L    29.929.929.99

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130903102 CD1                         L    29.929.929.99

MEMBER OFFSETS                               -14.05           -14.05

MEMBER130933120 CD1                         L    25.925.925.98
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MEMBER OFFSETS                          -14.05           -14.05

MEMBER130963114 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131023115 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131053132 CD1                     L    25.925.925.98

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131143124 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131153128 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131203144 CD1                     L    25.925.925.98

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131243135 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131283139 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131323153 CD1                     L    25.925.925.98

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131353140 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131393141 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131403157 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131413159 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131443L03 CD1                     L    25.925.925.98

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131533L04 CD1                     L    25.925.925.98

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131573170 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131593170 CD1                     L    29.929.929.99

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131633164 CD1                     L    10.05.005.000

MEMBER OFFSETS                          -14.05           -14.05

MEMBER131643L03 CD1                     L    10.05.005.000

MEMBER OFFSETS                          -14.05           -14.05
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MEMBER131663167 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131673168 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131683169 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131693170 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131703171 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131713172 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131723173 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131733174 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131743L04 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER131763177 CD1                     L    11.05.505.500

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L013049 CD1                     L    30.030.030.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L013068 CD1                     L    25.925.925.98

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L013069 CD1                     L    29.929.929.99

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L023060 CD1                     L    11.05.505.500

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L023078 CD1                     L    29.929.929.99

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L023079 CD1                     L    25.925.925.98

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L033166 CD1                     L    15.015.015.00

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L033186 CD1                     L    14.07.027.020

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L043176 CD1                     L    11.05.505.500

MEMBER OFFSETS                           -14.05           -14.05

MEMBER13L043196 CD1                     L    14.07.027.020
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MEMBER OFFSETS                          -14.05          -14.05

MEMBER130013002 CD2                     L    10.05.005.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130013016 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130023003 CD2                     L    10.05.005.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130023017 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130033004 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130043005 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130043019 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130053006 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130053020 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130063007 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130063021 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130073008 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130073022 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130083009 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130083023 CD2                     L    12.04.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130093010 CD2                     L    30.03.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130093024 CD2                     L    8.004.084.083

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130103011 CD2                     L    30.03.003.000

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MEMBER130103025 CD2                     L    8.004.084.083

MEMBER OFFSETS                          -6.250          -6.250
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MEMBER130113012 CD2                     L    30.03.003.000

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130113026 CD2                     L    12.04.084.083

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MEMBER130123013 CD2                     L    30.03.003.000

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MEMBER130123027 CD2                     L    12.04.084.083

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MEMBER130133014 CD2                     L    11.01.751.750

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MEMBER130143015 CD2                     L    11.03.753.750

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MEMBER130143029 CD2                     L    4.084.084.083

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MEMBER130153030 CD2                     L    12.04.084.083

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MEMBER130163017 CD2                     L    5.005.005.000

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MEMBER130163031 CD2                     L    12.03.913.917

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130173018 CD2                     L    5.005.005.000

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MEMBER130173032 CD2                     L    12.03.913.917

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130183019 CD2                     L    3.003.003.000

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130193020 CD2                     L    3.003.003.000

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130193034 CD2                     L    12.03.913.917

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MEMBER130203021 CD2                     L    3.003.003.000

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MEMBER130203035 CD2                     L    12.03.913.917

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130213022 CD2                     L    3.003.003.000

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MEMBER130213036 CD2                     L    12.03.913.917

MEMBER OFFSETS                           -6.250           -6.250

MEMBER130223023 CD2                     L    3.003.003.000
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MEMBER130223037 CD2                     L    12.03.913.917

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130233024 CD2                     L    3.003.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130233038 CD2                     L    12.03.913.917

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130243025 CD2                     L    3.003.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130243039 CD2                     L    8.003.913.917

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130253026 CD2                     L    3.003.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130253040 CD2                     L    8.003.913.917

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130263027 CD2                     L    3.003.003.000

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MEMBER130263041 CD2                     L    12.03.913.917

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130273028 CD2                     L    3.003.003.000

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130273042 CD2                     L    12.03.913.917

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MEMBER130283029 CD2                     L    5.501.751.750

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130293030 CD2                     L    5.503.753.750

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MEMBER130293044 CD2                     L    7.913.913.917

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MEMBER130303045 CD2                     L    12.03.913.917

MEMBER OFFSETS                          -6.250          -6.250

MEMBER130313032 CD2                     L    5.005.005.000

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MEMBER130313046 CD2                     L    12.04.004.000

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MEMBER130323033 CD2                     L    5.005.005.000

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MEMBER130323047 CD2                     L    12.04.004.000

MEMBER OFFSETS                          -6.250          -6.250
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MEMBER130333034 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130343035 CD2 L 3.003.003.000

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MEMBER130343049 CD2 L 12.04.004.000

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MEMBER130353036 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130353050 CD2 L 12.04.004.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130363037 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130363051 CD2 L 12.04.004.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130373038 CD2 L 3.003.003.000

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MEMBER130383039 CD2 L 9.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130383053 CD2 L 12.04.004.000

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MEMBER130393040 CD2 L 9.003.003.000

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MEMBER130403041 CD2 L 9.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130413042 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130413057 CD2 L 12.04.004.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130423043 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130423058 CD2 L 12.04.004.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130433044 CD2 L 5.505.505.500

MEMBER OFFSETS -6.250 -6.250

MEMBER130443045 CD2 L 5.505.505.500

MEMBER OFFSETS -6.250 -6.250

MEMBER130443060 CD2 L 7.914.004.000

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MEMBER OFFSETS                          -6.250           -6.250

MEMBER130453061 CD2                     L    12.04.004.000

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130463062 CD2                     L    25.95.195.190

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MEMBER130473067 CD2                     L    25.95.195.190

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MEMBER130493069 CD2                     L    5.195.195.190

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MEMBER130503063 CD2                     L    10.35.195.190

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MEMBER130513071 CD2                     L    15.55.195.190

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MEMBER130523072 CD2                     L    20.75.195.190

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MEMBER130533073 CD2                     L    10.95.195.190

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MEMBER130553064 CD2                     L    20.75.195.190

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MEMBER130563065 CD2                     L    15.55.195.190

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MEMBER130573077 CD2                     L    10.35.195.190

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130583078 CD2                     L    5.195.195.190

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130603080 CD2                     L    5.195.195.190

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MEMBER130613081 CD2                     L    25.95.195.190

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130623066 CD2                     L    25.95.195.190

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130633070 CD2                     L    10.35.195.190

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130643065 CD2                     L    3.003.003.000

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130643075 CD2                     L    20.75.195.190

MEMBER OFFSETS                          -6.250           -6.250

MEMBER130653076 CD2                     L    15.55.195.190

MEMBER OFFSETS                          -6.250           -6.250
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MEMBER130663067 CD2 L 5.005.005.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130663091 CD2 L 25.95.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130673068 CD2 L 5.005.005.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130673092 CD2 L 25.95.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130683069 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130693070 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130693094 CD2 L 20.75.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130703071 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130703088 CD2 L 10.35.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130713072 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130713084 CD2 L 15.55.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130723073 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130723098 CD2 L 20.75.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130733074 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130733099 CD2 L 10.95.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130743075 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130753082 CD2 L 20.75.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130763077 CD2 L 3.003.003.000

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MEMBER130763083 CD2 L 15.55.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130773078 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130773085 CD2 L 10.35.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130783079 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130783104 CD2 L 20.75.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130793080 CD2 L 5.505.505.500

MEMBER OFFSETS -6.250 -6.250

MEMBER130803081 CD2 L 5.505.505.500

MEMBER OFFSETS -6.250 -6.250

MEMBER130803106 CD2 L 5.795.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130813107 CD2 L 25.95.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130823083 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130823100 CD2 L 20.75.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130833086 CD2 L 3.622.002.003

MEMBER OFFSETS -6.250 -6.250

MEMBER130843097 CD2 L 15.55.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130853087 CD2 L 10.35.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130863087 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130863089 CD2 L 3.625.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130873090 CD2 L 10.35.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130883095 CD2 L 15.5.5880.588

MEMBER OFFSETS -6.250 -6.250

MEMBER130893090 CD2 L 3.003.003.000

MEMBER OFFSETS -6.250 -6.250

MEMBER130893101 CD2 L 15.55.795.790

MEMBER OFFSETS -6.250 -6.250

MEMBER130903103 CD2 L 15.5.5880.588

MEMBER OFFSETS -6.250 -6.250

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MEMBER130913092 CD2                          L    5.005.005.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130913112 CD2                          L    25.96.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130923093 CD2                          L    5.005.005.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130923119 CD2                          L    25.96.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130933094 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130943095 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130943121 CD2                          L    20.76.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130953113 CD2                          L    15.56.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130963097 CD2                          L    2.663.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130973098 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130973108 CD2                          L    15.56.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130983099 CD2                          L    6.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130983109 CD2                          L    20.76.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER130993100 CD2                          L    6.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER13099503C CD2   000000001111           L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131003101 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131003111 CD2                          L    20.76.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131013115 CD2                          L    15.56.006.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131033104 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER13103505C CD2                          L    15.56.006.000
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MEMBER OFFSETS                              -6.250           -6.250

MEMBER131043105 CD2                        L    3.003.003.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131043131 CD2                        L    20.76.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131053106 CD2                        L    5.505.505.500

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131063107 CD2                        L    5.505.505.500

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131063133 CD2                        L    6.006.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131073134 CD2                        L    25.96.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131083114 CD2                        L    15.56.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131093116 CD2                        L    3.006.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER13109503C CD2   000000001111         L    3.003.003.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131113117 CD2                        L    3.006.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131123118 CD2                        L    25.96.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER13113504C CD2                        L    15.56.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131143123 CD2                        L    1.396.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131153129 CD2                        L    1.396.006.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131163125 CD2                        L    3.00

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131173127 CD2                        L    3.00

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131183119 CD2                        L    5.005.005.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131183142 CD2                        L    25.95.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131193120 CD2                        L    5.005.005.000

MEMBER OFFSETS                              -6.250           -6.250
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MEMBER131193143 CD2                          L    25.95.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131203121 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131213145 CD2                          L    20.75.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER13121504C CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131233124 CD2                          L    3.80.8040.804

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131233147 CD2   000000001111           L    5.335.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131243125 CD2                          L    2.192.192.196

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131253126 CD2                          L    6.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131253136 CD2                          L    20.75.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131263127 CD2                          L    6.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER13126502C CD2   000000001111           L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131273128 CD2                          L    2.192.192.196

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131273138 CD2                          L    20.75.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131283129 CD2                          L    3.80.8040.804

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131293150 CD2   000000001111           L    5.335.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER13129505C CD2                          L    3.803.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131313132 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131313152 CD2                          L    20.75.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131323133 CD2                          L    5.505.505.500

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131333134 CD2                          L    5.505.505.500
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MEMBER OFFSETS                              -6.250           -6.250

MEMBER131333154 CD2                         L    5.335.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131343155 CD2                         L    25.95.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131353136 CD2                         L    6.926.926.928

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131363140 CD2                         L    20.75.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER13136502C CD2   000000001111          L    6.926.926.928

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131383139 CD2                         L    6.926.926.928

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131383141 CD2                         L    20.75.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131403148 CD2                         L    5.195.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131413149 CD2                         L    5.195.335.333

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131423143 CD2                         L    5.005.005.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131423161 CD2                         L    25.93.663.667

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131433144 CD2                         L    5.005.005.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131433164 CD2                         L    25.93.663.667

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131443145 CD2                         L    3.003.003.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131453146 CD2                         L    3.003.003.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131453166 CD2                         L    20.73.663.667

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131463147 CD2   000000001111          L    3.003.003.000

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131463162 CD2                         L    15.53.663.667

MEMBER OFFSETS                              -6.250           -6.250

MEMBER131473148 CD2   001111000000          L    3.003.003.000

MEMBER OFFSETS                              -6.250           -6.250
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MEMBER131473168 CD2   001111000000           L    3.663.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131483156 CD2                         L    5.19.6670.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131493150 CD2   000000001111           L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131493160 CD2                         L    5.19.6670.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131503151 CD2   001111000000           L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131503172 CD2   001111000000           L    3.663.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131513152 CD2                         L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131513173 CD2                         L    15.53.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131523153 CD2                         L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131523174 CD2                         L    20.73.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131533154 CD2                         L    5.505.505.500

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131543155 CD2                         L    5.505.505.500

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131543176 CD2                         L    3.663.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131553177 CD2                         L    25.93.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131563157 CD2                         L    6.001.261.268

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131563169 CD2                         L    5.193.663.667

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131573158 CD2                         L    6.001.731.732

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131583159 CD2                         L    6.001.731.732

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131583170 CD2   000000001111           L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131593160 CD2                         L    6.001.261.268
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MEMBER OFFSETS                          -6.250           -6.250

MEMBER131603171 CD2                   L    5.193.663.667

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131613163 CD2                   L    25.93.663.667

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131623167 CD2                   L    15.53.663.667

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131633184 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131643185 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131663178 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131673182 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131683183 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131693179 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131703191 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131713180 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131723193 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131733194 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131743181 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131763197 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131773198 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131783187 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131793190 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250

MEMBER131803192 CD2                   L    7.027.027.020

MEMBER OFFSETS                          -6.250           -6.250
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MEMBER131813195 CD2                          L    7.027.027.020

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131823183 CD2                          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131823188 CD2                          L    7.027.027.020

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131833189 CD2                          L    7.027.027.020

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131843185 CD2                          L    10.05.005.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131853186 CD2                          L    10.05.005.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131863187 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131873188 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131883189 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131893190 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131903191 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131913192 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131923193 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131933194 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131943195 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131953196 CD2                          L    30.03.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131963197 CD2                          L    11.05.505.500

MEMBER OFFSETS                                -6.250           -6.250

MEMBER131973198 CD2                          L    11.05.505.500

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1502C3138 CD2   001111000000           L    6.926.926.928

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1502C3158 CD2   001111000000           L    3.003.003.000
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MEMBER OFFSETS                                -6.250           -6.250

MEMBER1503C3111 CD2   001111000000          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1503C3126 CD2   001111000000          L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1504C3123 CD2                         L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1504C3146 CD2                         L    15.55.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1505C3131 CD2                         L    3.003.003.000

MEMBER OFFSETS                                -6.250           -6.250

MEMBER1505C3151 CD2                         L    15.55.335.333

MEMBER OFFSETS                                -6.250           -6.250

MEMBER 222 204G CG1                90.00RJ02     1.001.00

MEMBER 223 205G CG1                90.00RJ02     1.001.00

MEMBER 228 204G CG1                90.00RJ02     1.001.00

MEMBER 229 205G CG1                90.00RJ02     1.001.00

MEMBER 337 304G CG1                90.00RJ03     2.001.00

MEMBER 338 305G CG1                90.00RJ03     2.001.00

MEMBER 343 304G CG1                90.00RJ03     2.001.00

MEMBER 344 305G CG1                90.00RJ03     2.001.00

MEMBER 5L017000 CRP

MEMBER1102C202C CS1                              2.63

MEMBER OFFSETS                                 2.000

MEMBER1103C203C CS1                              2.63

MEMBER OFFSETS                                 2.000

MEMBER 104C204C CS1

MEMBER 105C205C CS1

MEMBER 202C302C CS1                              2.72

MEMBER 203C303C CS1                              2.72

MEMBER 204C304C CS1

MEMBER 205C305C CS1

MEMBER 302C402C CS1

MEMBER 303C403C CS1

MEMBER 304C404C CS1

MEMBER 305C405C CS1

MEMBER 3147604C CS1

MEMBER 3150605C CS1

MEMBER 402C502C CS1                              3.59
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MEMBER 403C503C CS1                              3.59

MEMBER 404C3147 CS1                              3.59

MEMBER 405C3150 CS1                              3.59

MEMBER 502C602C CS1

MEMBER 503C603C CS1

MEMBER 3170601C CS2

MEMBER 503L513L DL0                              5.11

MEMBER 513L543L DL1                              17.5

MEMBER 543L523L DL1                              9.42

MEMBER 200450C1 DL2

MEMBER 501L2004 DL2

MEMBER 502L542L DL2                              3.95

MEMBER 523L50C3 DL2                              13.1

MEMBER 542L50C2 DL2                              5.48

MEMBER 50C13L01 DL3

MEMBER 50C23L02 DL3                              3.28

MEMBER 50C360C3 DL3                              5.75

MEMBER 60C33170 DL3                              7.66

MEMBER 3L015L01 DL4

MEMBER 3L025L02 DL4

MEMBER 3L035L03 DL4

MEMBER 3L045L04 DL4

MEMBER1326 303G DM1                90.00RJ03     3.213.21

MEMBER OFFSETS                     4.116 4.313     -10.36-10.85

MEMBER1327 303G DM1                90.00RJ03     3.213.21

MEMBER OFFSETS                    -4.116 4.313     10.354-10.85

MEMBER1332 303G DM1                90.00RJ03     3.313.31

MEMBER OFFSETS                     4.313-4.518     -10.3610.851

MEMBER1333 303G DM1                90.00RJ03     3.313.31

MEMBER OFFSETS                    -4.313-4.518     10.35410.846

MEMBER1334 302G DM1                90.00RJ03     3.313.31

MEMBER OFFSETS                     4.313 4.518     -10.36-10.85

MEMBER1335 302G DM1                90.00RJ03     3.313.31

MEMBER OFFSETS                    -4.313 4.518     10.354-10.85

MEMBER1340 302G DM1                90.00RJ03     3.213.21

MEMBER OFFSETS                     4.116-4.313     -10.3610.851

MEMBER1341 302G DM1                90.00RJ03     3.213.21

MEMBER OFFSETS                    -4.116-4.313     10.35410.846

MEMBER120013034 HGR
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MEMBER120033036 HGR

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MEMBER 20163069 HGR

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MEMBER 20273112 HGR

MEMBER 20393161 HGR

MEMBER 20413162 HGR

MEMBER 20312043 HGS

MEMBER 20332044 HGS

MEMBER 20362045 HGS

MEMBER 20382046 HGS

MEMBER 001L101L L00                         2.002.00

MEMBER 002L102L L00                         2.002.00

MEMBER 003L103L L00                         2.002.00

MEMBER 101L101  L01                         11.611.6

MEMBER 102L102  L01                         11.611.6

MEMBER 103L103  L01                         11.611.6

MEMBER 101 201L L02                         1.091.09

MEMBER 102 202L L02                         1.091.09

MEMBER 103 203L L02                         1.091.09

MEMBER 201L20C1 L03                         2.452.45

MEMBER 202L20C2 L03                         2.452.45

MEMBER 203L20C3 L03                         2.452.45

MEMBER 20C12B01 L04                         24.624.6

MEMBER 20C22B02 L04                         24.624.6

MEMBER 20C32B05 L04                         24.624.6

MEMBER 2B012P01 L04                         4.404.40

MEMBER 2B022P02 L04                         4.404.40

MEMBER 2B052P03 L04                         4.404.40

MEMBER 2P012P13 L04                         5.285.28

MEMBER 2P022P15 L04                         5.285.28

MEMBER 2P032P06 L04                         5.285.28

MEMBER 2P062P16 L05                         10.510.5

MEMBER 2P132B03 L05                         10.510.5

MEMBER 2P152B04 L05                         10.510.5

MEMBER 2B03301L L06                         24.624.6
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MEMBER 2P16303L L06                              24.624.6

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MEMBER 302L402L L06                              2.002.00

MEMBER 303L403L L06                              2.022.02

MEMBER 30844001 LWH

MEMBER 30854006 LWH

MEMBER 31164028 LWH

MEMBER 31174029 LWH

MEMBER131214024 LWH

MEMBER OFFSETS                          -8.000

MEMBER131314032 LWH

MEMBER OFFSETS                          -8.000

MEMBER 31784069 LWH

MEMBER 31794072 LWH

MEMBER 31804073 LWH

MEMBER 31814076 LWH

MEMBER 31894084 LWH

MEMBER 31934088 LWH

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MEMBER1M042M043 M01               90.00RJ01 L    16.23.113.115
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MEMBER1M127M141 M01              90.00RJ01 L    50.92.002.000

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MEMBER1M128M145 M01              90.00RJ01 L    50.94.214.210

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MEMBER1M141M146 M01              90.00RJ01 L    50.94.214.210

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MEMBER1M160M167 M01               90.00RJ01 L    50.93.493.493
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MEMBER1M167M173 M01               90.00RJ01 L    50.91.061.061
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MEMBER1M172M182 M01               90.00RJ01 L    50.95.305.307
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MEMBER1M173M183 M01               90.00RJ01 L    50.95.305.307
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MEMBER1M182M186 M01               90.00RJ01 L    50.96.056.053
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MEMBER1M183M187 M01               90.00RJ01 L    50.96.056.053
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MEMBER1M185M191 M01               90.00RJ01 L    16.24.994.990
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MEMBER1M187M191 M01               90.00RJ01 L    50.91.211.213
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MEMBER1M189M190 M01               90.00RJ01 L    8.103.103.104
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MEMBER1M051M052 M02               90.00RJ01 L    8.083.103.104
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MEMBER1M052M053 M02               90.00RJ01 L    8.082.352.350
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MEMBER1M053M054 M02               90.00RJ01 L    14.2.7540.754
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MEMBER1M054M055 M02               90.00RJ01 L    14.23.103.104
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MEMBER1M061M062 M02              90.00RJ01 L    7.182.032.038

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MEMBER1M064M065 M02              90.00RJ01 L    14.23.103.104

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MEMBER1M065M066 M02              90.00RJ01 L    14.23.103.104

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MEMBER1M066M067 M02              90.00RJ01 L    14.23.103.104

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MEMBER1M086M087 M02                90.00RJ01 L    14.33.103.104

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MEMBER1M093M094 M02                90.00RJ01 L    7.05.2680.268

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MEMBER1M094M095 M02                90.00RJ01 L    8.082.832.837

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MEMBER1M109M110 M02                90.00RJ01 L    8.083.103.104

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MEMBER1M111M112 M02                           L    8.08.1560.156
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MEMBER1M178M182 M02               90.00RJ01 L    7.003.493.494
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MEMBER1M006M028 M03               90.00RJ01 L    7.007.007.000
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MEMBER1M011M036 M03               90.00RJ01 L    7.007.007.000
MEMBER OFFSETS                              -4.000           -4.000
MEMBER1M012M037 M03               90.00RJ01 L    7.007.007.000
MEMBER OFFSETS                              -4.000           -4.000
MEMBER1M013M038 M03               90.00RJ01 L    7.007.007.000
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MEMBER1M016M041 M03               90.00RJ01 L    5.385.385.386
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MEMBER1M017M020 M03               90.00RJ01 L    2.692.692.697
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MEMBER OFFSETS                              -4.000           -4.000

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MEMBER1M038M067 M03              90.00RJ01 L    6.216.216.219

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MEMBER1M042M049 M03              90.00RJ01 L    5.395.395.397

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M044M052 M03              90.00RJ01 L    4.074.074.071

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M045M069 M03              90.00RJ01 L    4.074.074.071

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M046M060 M03              90.00RJ01 L    3.533.533.531

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M047M061 M03              90.00RJ01 L    3.533.533.531

MEMBER OFFSETS                              -4.000           -4.000
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MEMBER OFFSETS                              -4.000           -4.000

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MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M055M082 M03               90.00RJ01 L    6.216.216.219

MEMBER OFFSETS                              -4.000           -4.000

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MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M057M084 M03               90.00RJ01 L    6.216.216.219

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M058M074 M03               90.00RJ01 L    6.216.216.219

MEMBER OFFSETS                              -4.000           -4.000

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MEMBER OFFSETS                              -4.000           -4.000

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MEMBER1M075M089 M03               90.00RJ01 L    6.216.216.219

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M079M102 M03               90.00RJ01 L    3.713.713.717

MEMBER OFFSETS                              -4.000           -4.000

MEMBER1M080M109 M03               90.00RJ01 L    6.116.116.110
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MEMBER150865110 MD2 L 29.16.006.000

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MEMBER150905112 MD2 L 17.85.515.516

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MEMBER150915092 MD2 L 5.122.722.729

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MEMBER150995116 MD2 L 26.03.443.443

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MEMBER151005114 MD2 L 26.09.009.000

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MEMBER151015115 MD2                     L    25.99.009.000
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MEMBER151025103 MD2                     L    3.003.003.000
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MEMBER151035104 MD2                     L    3.003.003.000
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MEMBER151035135 MD2                     L    29.19.009.000
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MEMBER151045105 MD2                     L    6.003.003.000
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MEMBER151045136 MD2                     L    29.19.009.000
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MEMBER151065107 MD2                     L    6.006.006.000
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MEMBER151065129 MD2                     L    29.19.009.000
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MEMBER151075108 MD2                     L    6.003.003.000
MEMBER OFFSETS                          -5.950          -5.950
MEMBER151075130 MD2                     L    29.19.009.000
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MEMBER151085109 MD2                     L    6.003.003.000
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MEMBER151095141 MD2                     L    29.19.009.000
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MEMBER151105111 MD2                     L    3.003.003.000
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MEMBER151105142 MD2                     L    29.19.009.000
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MEMBER151125113 MD2                     L    5.122.392.396
MEMBER OFFSETS                          -5.950          -5.950
MEMBER151125122 MD2                     L    17.83.383.385
MEMBER OFFSETS                          -5.950          -5.950
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MEMBER151135114 MD2 L 5.122.722.729

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MEMBER OFFSETS -5.950 -5.950

MEMBER151145115 MD2 L 2.502.502.500

MEMBER OFFSETS -5.950 -5.950

MEMBER151145124 MD2 L 26.0

MEMBER OFFSETS -5.950 -5.950

MEMBER151155125 MD2 L 3.38

MEMBER OFFSETS -5.950 -5.950

MEMBER151165117 MD2 L 5.125.125.125

MEMBER OFFSETS -5.950 -5.950

MEMBER151165121 MD2 L 26.02.582.588

MEMBER OFFSETS -5.950 -5.950

MEMBER151175118 MD2 L 5.125.125.125

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MEMBER151175127 MD2 L 3.393.393.390

MEMBER OFFSETS -5.950 -5.950

MEMBER151185128 MD2 L 21.73.383.385

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MEMBER151195120 MD2 L 5.502.502.500

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MEMBER151205121 MD2 L 5.503.003.000

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MEMBER151215126 MD2 L 26.0.7970.797

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MEMBER151225123 MD2 L 10.22.392.396

MEMBER OFFSETS -5.950 -5.950

MEMBER151235124 MD2 L 10.22.722.729

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MEMBER151245125 MD2 L 2.502.502.500

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MEMBER151245133 MD2 L 26.0

MEMBER OFFSETS -5.950 -5.950

MEMBER151255134 MD2 L 4.20

MEMBER OFFSETS -5.950 -5.950

MEMBER151265127 MD2 L 10.25.125.125

MEMBER OFFSETS -5.950 -5.950

MEMBER151265132 MD2 L 26.01.271.270

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MEMBER151295130 MD2                     L    6.006.006.000

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MEMBER151295138 MD2                     L    29.19.009.000

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MEMBER151305139 MD2                     L    29.19.009.000

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MEMBER151325144 MD2                     L    26.09.009.000

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MEMBER151335147 MD2                     L    7.017.017.010

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MEMBER151355136 MD2                     L    3.003.003.000

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MEMBER151355150 MD2                     L    29.13.143.146

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MEMBER151365137 MD2                     L    6.003.003.000

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MEMBER151365151 MD2                     L    29.13.143.146

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MEMBER151375138 MD2                     L    6.003.003.000

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MEMBER151375152 MD2                     L        3.143.146

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MEMBER151385153 MD2                     L    29.13.143.146

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MEMBER151395140 MD2                     L    6.003.003.000

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MEMBER151395155 MD2                     L    29.13.143.146

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MEMBER151405141 MD2                     L    6.003.003.000

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MEMBER151405156 MD2                     L        3.143.146

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MEMBER151415142 MD2                     L    3.003.003.000

MEMBER OFFSETS                          -5.950           -5.950
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MEMBER151415157 MD2 L 29.13.143.146

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MEMBER151435145 MD2 L 7.017.017.010

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MEMBER151505163 MD2 L 3.863.863.864

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MEMBER151585171 MD2 L 3.863.863.864

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MEMBER151605161 MD2 L 10.02.502.500

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MEMBER151625163 MD2                     L    30.03.003.000
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MEMBER151665167 MD2                     L    30.03.003.000
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MEMBER151675168 MD2                     L    30.03.003.000
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MEMBER151685169 MD2                     L    30.03.003.000
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MEMBER151695170 MD2                     L    30.03.003.000
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MEMBER 102P202P PL1                         1.001.00
MEMBER 103P203P PL1                         1.001.00
MEMBER 201P301P PL2                         1.001.00
MEMBER 202P302P PL2                         1.001.00
MEMBER 203P303P PL2                             1.01
MEMBER 301P401L PL3                         2.502.50
MEMBER 302P402L PL3                         2.502.50
MEMBER 303P403L PL3                         2.502.50
MEMBER 401L411L PL4                         1.661.66
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MEMBER 402L412L PL4                              1.661.66

MEMBER 403L413L PL4                              1.661.66

MEMBER R001R002 R01

MEMBER1R002R004 R01

MEMBER OFFSETS                                                50.000

MEMBER 201XP129 RP0

MEMBER12P03P128 RP0

MEMBER OFFSETS                     -17.44 9.789       4.489-2.725

MEMBER 303LP030 RP0                 90.00          2.00

MEMBER 303LP126 RP0                 90.00          2.00

MEMBER P010P032 RP0

MEMBER P018P026 RP0                 90.00          2.00

MEMBER P026P019 RP0                 90.00          2.00

MEMBER P027P026 RP0

MEMBER P028P005 RP0

MEMBER P028P027 RP0

MEMBER1P029204X RP0

MEMBER OFFSETS                     -0.067 0.116       8.475 5.315

MEMBER P029P028 RP0

MEMBER P030P025 RP0                 90.00          2.00

MEMBER P031P030 RP0

MEMBER P032P031 RP0

MEMBER1P0332P03 RP0

MEMBER OFFSETS                                    17.15210.293

MEMBER P033P032 RP0

MEMBER1P105P131 RP0

MEMBER OFFSETS                                    -3.0-3-5.0-3

MEMBER P111P127 RP0

MEMBER P118P127 RP0                 90.00          2.00

MEMBER P126P125 RP0                 90.00          2.00

MEMBER P127P119 RP0                 90.00          2.00

MEMBER P128P132 RP0

MEMBER P129P131 RP0

MEMBER P130P126 RP0

MEMBER P131P111 RP0

MEMBER1P132P110 RP0

MEMBER OFFSETS                      4.489-2.725       4.579-2.569

MEMBER P132P130 RP0

MEMBER P005P006 RP1
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MEMBER P006P007 RP1

MEMBER P007P008 RP1

MEMBER P008P009 RP1

MEMBER P009P010 RP1

MEMBER P012P013 RP1

MEMBER P013P014 RP1

MEMBER P014P015 RP1

MEMBER P015P016 RP1

MEMBER P016P017 RP1

MEMBER P019P020 RP1                90.00          1.00

MEMBER P020P022 RP1                90.00          1.00

MEMBER P022P023 RP1                90.00          1.00

MEMBER P023P024 RP1                90.00          1.00

MEMBER P024P025 RP1                90.00          1.00

MEMBER P106P105 RP1

MEMBER P107P106 RP1

MEMBER P108P107 RP1

MEMBER P109P108 RP1

MEMBER P110P109 RP1

MEMBER P113P112 RP1

MEMBER P114P113 RP1

MEMBER P115P114 RP1

MEMBER P116P115 RP1

MEMBER P117P116 RP1

MEMBER P120P119 RP1

MEMBER P122P120 RP1

MEMBER P123P122 RP1

MEMBER P124P123 RP1

MEMBER P125P124 RP1

MEMBER1P002P005 RP2

MEMBER OFFSETS                                 5.250

MEMBER1P003P010 RP2

MEMBER OFFSETS                                 5.250

MEMBER1P005P012 RP2

MEMBER OFFSETS                                                 -2.625

MEMBER1P010P017 RP2

MEMBER OFFSETS                                                 -2.625

MEMBER1P012P019 RP2

MEMBER OFFSETS                                -2.625           -5.250
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MEMBER1P017P025 RP2
MEMBER OFFSETS                              -2.625          -5.250
MEMBER P022P021 RP2              90.00        2.00
MEMBER P102P105 RP2
MEMBER P103P110 RP2
MEMBER P105P112 RP2
MEMBER P110P117 RP2
MEMBER P112P119 RP2
MEMBER P117P125 RP2
MEMBER P122P121 RP2              90.00        2.00
MEMBER P006P013 RP3
MEMBER P007P014 RP3
MEMBER P008P015 RP3
MEMBER P009P016 RP3
MEMBER P012P027 RP3
MEMBER P013P020 RP3
MEMBER P014P022 RP3
MEMBER P015P023 RP3
MEMBER P016P024 RP3
MEMBER P017P031 RP3
MEMBER P106P113 RP3
MEMBER P107P114 RP3
MEMBER P108P115 RP3
MEMBER P109P116 RP3
MEMBER P112P111 RP3
MEMBER P113P120 RP3
MEMBER P114P122 RP3
MEMBER P115P123 RP3
MEMBER P116P124 RP3
MEMBER P130P117 RP3
MEMBER 216 R003 RS1              90.00RJ02    1.001.00
MEMBER 331 R005 RS1              90.00RJ03    2.001.00
MEMBER 50C2S001 S01                           2.71
MEMBER 542LS011 S01                           1.00
MEMBER S001S002 S01                           3.16
MEMBER S002S003 S01                           3.16
MEMBER S00350C3 S01                           1.00
MEMBER S004S005 S01                           2.71
MEMBER S005S006 S01                           3.16
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MEMBER S006S007 S01                          3.16

MEMBER S009S041 S01                          1.00

MEMBER S011S009 S01                          1.00

MEMBER S041543L S01                          1.00

MEMBER 50C2S004 S02                          1.00

MEMBER 50C2S011 S02

MEMBER 542LS004 S02

MEMBER 542LS005 S02

MEMBER S001S006 S02

MEMBER S002S041 S02

MEMBER S003S007 S02                          1.00

MEMBER S004S001 S02

MEMBER S005S009 S02

MEMBER S006S003 S02

MEMBER S009S002 S02

MEMBER S009S006 S02

MEMBER S009S007 S02

MEMBER S011S001 S02

MEMBER S011S002 S02

MEMBER S011S005 S02

MEMBER S041S003 S02

MEMBER S041S007 S02

MEMBER S001S005 S03                          1.00

MEMBER S002S006 S03                          1.00

MEMBER S006S008 S03                          2.00

MEMBER120012002 SC1                      L   6.003.003.000

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MEMBER120012005 SC1                      L   10.25.005.000

MEMBER OFFSETS                            -4.000           -4.000

MEMBER120022003 SC1                      L   6.003.003.000

MEMBER OFFSETS                            -4.000           -4.000

MEMBER120022006 SC1                      L   5.005.005.000

MEMBER OFFSETS                            -4.000           -4.000

MEMBER120032007 SC1                      L   10.25.005.000

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MEMBER120052006 SC1                      L   6.003.003.000

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MEMBER120052011 SC1                      L   10.22.082.083

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MEMBER120062012 SC1                         L    5.202.082.083

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MEMBER120072019 SC1                         L    10.25.185.187

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MEMBER120082009 SC1                         L    8.005.505.500

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MEMBER120082013 SC1                         L    3.203.203.200

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MEMBER120092010 SC1                         L    8.005.505.500

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MEMBER120092014 SC1                         L    3.203.203.200

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MEMBER120102011 SC1                         L    8.005.505.500

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MEMBER120102015 SC1                         L    3.203.203.200

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120112012 SC1                         L    11.05.505.500

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120112016 SC1                         L    10.23.203.200

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120122017 SC1                         L    5.203.203.200

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120132014 SC1                         L    8.005.505.500

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MEMBER120132020 SC1                         L    8.804.704.700

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MEMBER120142015 SC1                         L    8.005.505.500

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120142021 SC1                         L    4.704.704.700

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120152016 SC1                         L    8.005.505.500

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MEMBER120152022 SC1                         L    4.704.704.700

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MEMBER120162017 SC1                         L    6.005.505.500

MEMBER OFFSETS                               -4.000           -4.000

MEMBER120162023 SC1                         L    4.704.704.700
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MEMBER120172018 SC1 L 6.00.9200.920

MEMBER OFFSETS -4.000 -4.000

MEMBER120182019 SC1 L 6.002.102.100

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MEMBER120182024 SC1 L 10.94.704.700

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MEMBER120192025 SC1 L 7.714.704.700

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MEMBER120202021 SC1 L 11.92.802.800

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MEMBER120202027 SC1 L 8.805.475.479

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MEMBER120212022 SC1 L 11.92.702.700

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MEMBER120212028 SC1 L 4.084.104.100

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MEMBER120222023 SC1 L 11.92.502.500

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MEMBER120222029 SC1 L 4.084.104.100

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MEMBER120232024 SC1 L 11.93.923.920

MEMBER OFFSETS -4.000 -4.000

MEMBER120232030 SC1 L 4.084.104.100

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MEMBER120242025 SC1 L 2.082.102.100

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MEMBER120242032 SC1 L 10.94.104.100

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MEMBER120252026 SC1 L 7.714.104.100

MEMBER OFFSETS -4.000 -4.000

MEMBER120262033 SC1 L 14.24.104.100

MEMBER OFFSETS -4.000 -4.000

MEMBER120272028 SC1 L 14.02.802.800

MEMBER OFFSETS -4.000 -4.000

MEMBER120272034 SC1 L 10.96.006.000

MEMBER OFFSETS -4.000 -4.000

MEMBER120282029 SC1 L 14.02.702.700

MEMBER OFFSETS -4.000 -4.000

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MEMBER120292030 SC1                          L    14.02.502.500

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120292035 SC1                          L    10.96.006.000

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120302031 SC1                          L    14.03.923.920

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120312032 SC1                          L    14.03.923.920

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120322033 SC1                          L    14.02.102.100

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120322037 SC1                          L    10.96.006.000

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120332038 SC1                          L    14.26.006.000

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120342035 SC1                          L    5.505.505.500

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120342039 SC1                          L    10.95.475.479

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120352036 SC1                          L    5.506.416.417

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120352040 SC1                          L    10.95.475.479

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120362037 SC1                          L    5.506.416.417

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120372038 SC1                          L    4.202.082.083

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120372042 SC1                          L    10.95.475.479

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120392040 SC1                          L    11.05.505.500

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120402041 SC1                          L    11.06.416.417

MEMBER OFFSETS                                -4.000           -4.000

MEMBER120412042 SC1                          L        6.416.417

MEMBER OFFSETS                                -4.000           -4.000

MEMBER 20432044 SC2

MEMBER 20432045 SC2

MEMBER 20442046 SC2

MEMBER 20452046 SC2

MEMBER 411L501L TR1                               1.661.66
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MEMBER 412L502L TR1                              3.831.66

MEMBER 413L503L TR1                              3.831.66

MEMBER 201LM031 V01                              1.001.00

MEMBER 202LM119 V01                              1.001.00

MEMBER 203LM112 V01                              .934.934

MEMBER M031202L V01                              1.001.00

MEMBER M112201L V01                              1.001.00

MEMBER M119203L V01                              .934.934

MEMBER 201L20C8 V02                              2.452.45

MEMBER1202L20C4 V02                              2.772.77

MEMBER OFFSETS                    -21.64 2.72318.875

MEMBER 203L20C6 V02                              2.452.45

MEMBER 210 20C7 V03                              1.391.39

MEMBER 213 20C5 V03                              1.261.26

MEMBER 203X303L V12                              2.312.31

MEMBER 206X302L V12                              2.072.07

MEMBER120C4301L V12                              1.811.81

MEMBER OFFSETS                                     18.703-2.354-16.32

MEMBER 20C6205X V12                              9.099.09

MEMBER 20C8202X V12                              6.246.24

MEMBER 201X208X V13                              4.024.02

MEMBER 204X207X V13                              3.053.05

MEMBER 209XP011 V13                              2.542.54

MEMBER 20C5204X V13                              4.714.71

MEMBER 20C7201X V13                              3.543.54

MEMBER 210XP118 V13                              2.282.28

MEMBER P011P018 V13                              3.563.56

MEMBER 201X203X V22                              2.312.31

MEMBER 202X201X V22                              6.246.24

MEMBER 204X206X V22                              2.072.07

MEMBER 205X204X V22                              9.099.09

MEMBER 207XP001 V23                              3.053.05

MEMBER 208XP101 V23                              4.024.02

MEMBER P001209X V23                              2.542.54

MEMBER P101210X V23                              2.282.28

MEMBER150155016 VS1                           L    13.22.502.500

MEMBER OFFSETS                                 -6.000           -6.000

MEMBER150165017 VS1                           L    13.22.502.500

MEMBER OFFSETS                                 -6.000           -6.000
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MEMBER150395040 VS1                          L    13.22.502.500

MEMBER OFFSETS                                -6.000           -6.000

MEMBER150405041 VS1                          L    13.22.502.500

MEMBER OFFSETS                                -6.000           -6.000

MEMBER1V0035015 VS1                          L    13.23.203.200

MEMBER OFFSETS                                -6.000           -6.000

MEMBER1V0045039 VS1                          L    13.23.203.200

MEMBER OFFSETS                                -6.000           -6.000

MEMBER V0005025 VS2

MEMBER V0005002 VS3

MEMBER V0005023 VS3

MEMBER V0005042 VS3

MEMBER V000V002 VS4

MEMBER V002V005 VT1   000011

MEMBER1V003V006 VT1   000011                     2.002.00

MEMBER OFFSETS                               -2.782           -2.782

MEMBER1V004V007 VT1   000011                     2.002.00

MEMBER OFFSETS                               -2.782           -2.782

MEMBER V005V008 VT1

MEMBER1V006V007 VT1                              1.001.00

MEMBER OFFSETS                               -2.782           -2.782

MEMBER1V006V009 VT1                              1.001.00

MEMBER OFFSETS                               -2.782           -2.782

MEMBER1V007V010 VT1                              1.001.00

MEMBER OFFSETS                               -2.782           -2.782

MEMBER V008V011 VT1

MEMBER1V009V012 VT1                              1.00.999

MEMBER OFFSETS                               -2.782           -2.782

MEMBER1V010V013 VT1                              1.00.999

MEMBER OFFSETS                               -2.782           -2.782

MEMBER V011V014 VT2

MEMBER1V012V015 VT2                              1.00.999

MEMBER OFFSETS                               -2.782           -2.782

MEMBER1V013V016 VT2                              1.00.999

MEMBER OFFSETS                               -2.782           -2.782

MEMBER V014V017 VT3

MEMBER1V015V018 VT3                              1.00.999

MEMBER OFFSETS                               -2.250           -2.250

MEMBER1V016V019 VT3                              1.00.999
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MEMBER OFFSETS -2.250 -2.250

MEMBER V017V020 VT3

MEMBER1V018V021 VT3 1.00.999

MEMBER OFFSETS -2.250 -2.250

MEMBER1V019V022 VT3 1.00.999

MEMBER OFFSETS -2.250 -2.250

MEMBER V005V006 VT4

MEMBER V005V007 VT4

MEMBER V008V009 VT4

MEMBER V008V010 VT4

MEMBER1V009V010 VT4 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V011V012 VT4

MEMBER V011V013 VT4

MEMBER1V012V013 VT4 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V014V015 VT4

MEMBER V014V016 VT4

MEMBER1V015V016 VT4 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V017V018 VT4

MEMBER V017V019 VT4

MEMBER1V018V019 VT4 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V020V021 VT4

MEMBER V020V022 VT4

MEMBER1V021V022 VT4 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V005V009 VT5

MEMBER1V006V010 VT5 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V007V008 VT5

MEMBER V008V013 VT5

MEMBER V009V011 VT5

MEMBER1V010V012 VT5 1.001.00

MEMBER OFFSETS -1.750 -1.750

MEMBER V011V015 VT5

MEMBER1V012V016 VT5 1.001.00

MEMBER OFFSETS -1.750 -1.750

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MEMBER V013V014 VT5

MEMBER V014V019 VT5

MEMBER V015V017 VT5

MEMBER1V016V018 VT5                              1.001.00

MEMBER OFFSETS                                  -1.750           -1.750

MEMBER V017V021 VT5

MEMBER1V018V022 VT5                              1.001.00

MEMBER OFFSETS                                  -1.750           -1.750

MEMBER V019V020 VT5

MEMBER1101L101P W.BSK       100111  90.00RJ01F

MEMBER OFFSETS                       0.493 0.854 5.918

MEMBER1102L102P W.BSK       100111           F

MEMBER OFFSETS                      -0.493 0.854 5.918

MEMBER1103L103P W.BSK       100111           F     4.00

MEMBER OFFSETS                                 6.000

MEMBER1201L201P W.BSK       100111           F

MEMBER OFFSETS                       0.493 0.854 5.918

MEMBER1202L202P W.BSK       100111           F

MEMBER OFFSETS                      -0.493 0.854 5.918

MEMBER1203L203P W.BSK       100111           F

MEMBER OFFSETS                                 6.000

MEMBER1301L301P W.BSK       100111           F

MEMBER OFFSETS                       0.493 0.854 5.918

MEMBER1302L302P W.BSK       100111           F

MEMBER OFFSETS                      -0.493 0.854 5.918

MEMBER1303L303P W.BSK       100111           F

MEMBER OFFSETS                                 6.000

MEMBER1R002R003 WB1   100111

MEMBER OFFSETS                                20.000           -20.00

MEMBER1R004R005 WB1   100111

MEMBER OFFSETS                                20.000           -20.00

MEMBER1204C204G WB2   100111

MEMBER OFFSETS                                20.000           -20.00

MEMBER1205C205G WB2   100111

MEMBER OFFSETS                                20.000           -20.00

MEMBER1302C302G WB2   100111

MEMBER OFFSETS                                20.000           -20.00

MEMBER1303C303G WB2   100111        90.00RJ03         .760

MEMBER OFFSETS                                20.000           -20.00
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MEMBER1304C304G WB2   100111                     2.33

MEMBER OFFSETS                                 20.000            -20.00

MEMBER1305C305G WB2   100111        90.00RJ03

MEMBER OFFSETS                                 20.000            -20.00

MEMBER140014002 WH1                           L    15.03.423.420

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140014007 WH1                           L    8.923.603.600

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140024003 WH1                           L    15.02.582.580

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140034004 WH1                           L    15.01.501.500

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140034010 WH1                           L    3.583.603.600

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140044005 WH1                           L    15.03.003.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140054006 WH1                           L    15.04.504.500

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140064015 WH1                           L    8.923.603.600

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140074008 WH1                           L    15.03.003.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140074018 WH1                           L    8.921.921.920

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140084009 WH1                           L    15.03.003.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140084016 WH1                           L    5.336.006.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140094010 WH1                           L    15.03.003.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140104011 WH1                           L    15.01.501.500

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140114012 WH1                           L    15.03.003.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140124013 WH1                           L    15.03.003.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140124017 WH1                           L    5.336.006.000

MEMBER OFFSETS                                 -3.190            -3.190

MEMBER140134014 WH1                           L    15.01.501.500
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MEMBER OFFSETS -3.190 -3.190

MEMBER140144015 WH1 L 15.03.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140144021 WH1 L 5.332.172.170

MEMBER OFFSETS -3.190 -3.190

MEMBER140154031 WH1 L 8.925.335.333

MEMBER OFFSETS -3.190 -3.190

MEMBER140164019 WH1 L 5.336.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140174020 WH1 L 5.336.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140184027 WH1 L 8.925.335.333

MEMBER OFFSETS -3.190 -3.190

MEMBER140194022 WH1 L 5.336.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140204023 WH1 L 5.336.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140214030 WH1 L 5.333.163.167

MEMBER OFFSETS -3.190 -3.190

MEMBER140224028 WH1 L 5.336.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140234029 WH1 L 5.336.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140244025 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140244037 WH1 L 11.63.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140254026 WH1 L 9.002.582.583

MEMBER OFFSETS -3.190 -3.190

MEMBER140254038 WH1 L 11.63.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140264027 WH1 L 9.003.413.417

MEMBER OFFSETS -3.190 -3.190

MEMBER140274028 WH1 L 9.003.413.417

MEMBER OFFSETS -3.190 -3.190

MEMBER140284033 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140294030 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140294034 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140304031 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140314032 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140314043 WH1 L 11.63.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140324044 WH1 L 11.63.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140334034 WH1 L 6.006.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140334035 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140344036 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140354040 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140364041 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140374038 WH1 L 3.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140374061 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140384039 WH1 L 6.002.582.583

MEMBER OFFSETS -3.190 -3.190

MEMBER140384045 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140394040 WH1 L 6.003.413.417

MEMBER OFFSETS -3.190 -3.190

MEMBER140404046 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140414042 WH1 L 6.006.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140414047 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140424043 WH1 L 6.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140434044 WH1 L 3.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140434048 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140444052 WH1 L 11.63.413.417

MEMBER OFFSETS -3.190 -3.190

MEMBER140454055 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140464049 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140474050 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140484051 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140494053 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140504054 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140514058 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140524066 WH1 L 11.62.582.583

MEMBER OFFSETS -3.190 -3.190

MEMBER140534054 WH1 L 6.006.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140534056 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140544057 WH1 L 11.66.006.000

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MEMBER140554062 WH1 L 11.66.006.000

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MEMBER140564059 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140574060 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140584065 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140594063 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140604064 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140614062 WH1 L 3.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140614069 WH1 L 11.62.582.583

MEMBER OFFSETS -3.190 -3.190

MEMBER140624063 WH1 L 6.006.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140624070 WH1 L 11.62.582.583

MEMBER OFFSETS -3.190 -3.190

MEMBER140634067 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140644065 WH1 L 6.006.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140644068 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140654066 WH1 L 3.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140654075 WH1 L 11.62.662.667

MEMBER OFFSETS -3.190 -3.190

MEMBER140664076 WH1 L 11.62.662.667

MEMBER OFFSETS -3.190 -3.190

MEMBER140674072 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140684073 WH1 L 11.66.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140694070 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140704071 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140714072 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140714080 WH1 L 5.021.601.604

MEMBER OFFSETS -3.190 -3.190

MEMBER140724077 WH1 L 5.026.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140734074 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140734079 WH1 L 5.026.006.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140744075 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140744088 WH1 L 5.025.105.103

MEMBER OFFSETS -3.190 -3.190

MEMBER140754076 WH1 L 9.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140774078 WH1 L 6.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140774081 WH1 L 5.023.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140784079 WH1 L 6.003.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140784083 WH1 L 4.023.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140794087 WH1 L 5.024.024.020

MEMBER OFFSETS -3.190 -3.190

MEMBER140804084 WH1 L 5.023.413.416

MEMBER OFFSETS -3.190 -3.190

MEMBER140814082 WH1 L 5.023.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140824085 WH1 L 5.021.021.020

MEMBER OFFSETS -3.190 -3.190

MEMBER140834086 WH1 L 4.021.021.020

MEMBER OFFSETS -3.190 -3.190

MEMBER140844085 WH1 L 15.03.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140854086 WH1 L 15.03.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140864087 WH1 L 15.03.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140874088 WH1 L 15.03.003.000

MEMBER OFFSETS -3.190 -3.190

MEMBER140164017 WH2 L 6.006.006.000

MEMBER OFFSETS -3.000 -3.000

MEMBER140224023 WH2 L 6.006.006.000

MEMBER OFFSETS -3.000 -3.000

MEMBER140354036 WH2 L 6.006.006.000

MEMBER OFFSETS -3.000 -3.000

MEMBER140454046 WH2 L 6.006.006.000

MEMBER OFFSETS -3.000 -3.000

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MEMBER140474048 WH2                          L    6.006.006.000

MEMBER OFFSETS                                -3.000           -3.000

MEMBER140494050 WH2                          L    6.006.006.000

MEMBER OFFSETS                                -3.000           -3.000

MEMBER140554056 WH2                          L    6.006.006.000

MEMBER OFFSETS                                -3.000           -3.000

MEMBER140574058 WH2                          L    6.006.006.000

MEMBER OFFSETS                                -3.000           -3.000

MEMBER140594060 WH2                          L    6.006.006.000

MEMBER OFFSETS                                -3.000           -3.000

MEMBER140674068 WH2                          L    6.006.006.000

MEMBER OFFSETS                                -3.000           -3.000

MEMBER 40024009 WH3                          L    3.583.603.600

MEMBER 40044011 WH3                          L    3.583.603.600

MEMBER 40054013 WH3                          L    3.583.603.600

MEMBER 40184019 WH3                          L    3.003.003.000

MEMBER 40204021 WH3                          L    3.003.003.000

MEMBER 40264039 WH3                          L        3.003.000

MEMBER 40304042 WH3                          L    3.003.003.000

MEMBER 40514052 WH3                          L    3.003.003.000

MEMBER 40804081 WH3                          L    3.003.003.000

MEMBER 40824083 WH3                          L    3.003.003.000

MEMBER15L025175 MD1                          L    25.929.129.12

MEMBER OFFSETS                                -18.35           -18.35

MEMBER151755087 MD1                          L    25.929.129.12

MEMBER OFFSETS                                -18.35           -18.35

MEMBER150605176 MD2                          L    14.9

MEMBER OFFSETS                                -5.950           -5.950

MEMBER151765088 MD2                          L    14.9

MEMBER OFFSETS                                -5.950           -5.950

MEMBER151755176 MD2

MEMBER OFFSETS                                -5.950           -5.950

MEMBER150615177 MD2                          L    26.03.383.385

MEMBER OFFSETS                                -5.950           -5.950

MEMBER151775072 MD2                          L    26.03.383.385

MEMBER OFFSETS                                -5.950           -5.950

MEMBER151765177 MD2

MEMBER OFFSETS                                -5.950           -5.950

MEMBER151205098 MD2                          L    25.99.009.000
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MEMBER OFFSETS                                -5.950            -5.950

MEMBER150545131 MD1                          L    21.25.125.125

MEMBER OFFSETS                                -18.35            -18.35

MEMBER151315055 MD1                          L    21.25.125.125

MEMBER OFFSETS                                -18.35            -18.35

MEMBER150375178 MD2                          L    5.125.125.125

MEMBER OFFSETS                                -5.950            -5.950

MEMBER151785038 MD2                          L    5.125.125.125

MEMBER OFFSETS                                -5.950            -5.950

MEMBER150135179 MD2                          L    21.25.125.125

MEMBER OFFSETS                                -5.950            -5.950

MEMBER151795014 MD2                          L    21.25.125.125

MEMBER OFFSETS                                -5.950            -5.950

MEMBER151795178 MD2

MEMBER OFFSETS                                -5.950            -5.950

MEMBER151785131 MD2

MEMBER OFFSETS                                -5.950            -5.950

MEMBER151315062 MD2

MEMBER OFFSETS                                -5.950            -5.950

SPAN

SPAN A1      C  3L01 5L01

SPAN A2      C  3L02 5L02

SPAN A3      C  3L03 5L03

SPAN A4      C  3L04 5L04

SPAN B1      C  3084 4001

SPAN B2      C  3121 4024

SPAN B3      C  3178 4069

SPAN B4      C  3116 4028

SPAN B5      C  3189 4084

SPAN B6      C  3179 4072

SPAN B7      C  3117 4029

SPAN B8      C  3180 4073

SPAN B9      C  3085 4006

SPAN C1      C  3193 4088

SPAN C2      C  3131 4032

SPAN C3      C  3181 4076

SPAN D1      C  2013 3066

SPAN D2      C  2027 3112

SPAN D3      C  2001 3034
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SPAN D4      C  2039 3161

SPAN D5      C  2016 3069

SPAN D6      C  2003 3036

SPAN D7      C  2019 3071

SPAN D8      C  2026 3108

SPAN D9      C  2041 3162

SPAN E1         5L01 5044 5045 5046 5047 5048 5049 5050 5051 5052 5L02

SPAN E2         5L01 5077 5102 5L03

SPAN E4         5L03 5149

SPAN E5         5L04 5159

SPAN E6         5149 5150 5151 5152 5153 5154 5155 5156 5157 5158 5159

SPAN E7         5162 5163 5164 5165 5166 5167 5168 5169 5170 5171 5172

SPAN E8         5004 5005 5006 5007 5008 5009 5010 5011

SPAN E9         5054 5061

SPAN F1         5042 5058 5070 5075 5092 5100 5114 5124 5133

SPAN G1         3L03 3166 3167 3168 3169 3170

SPAN G2         3170 3171 3172 3173 3174 3L04

SPAN G3         3L01 3049 3050 3051 3052 3053 3054 3055 3056 3057 3058 3L02

SPAN G4         3L01 3068 3093 3120 3144 3L03

SPAN G5         3L02 3079 3105 3132 3153 3L04

SPAN G6         3061 3081 3107 3134 3155 3177

SPAN G7         3046 3062 3066 3091 3112 3118 3142 3161 3163

SPAN G8         3186 3187 3188 3189 3190 3191 3192 3193 3194 3195 3196

SPAN G9         3003 3004 3005 3006 3007 3008 3009 3010 3011 3012 3013

JOINT

JOINT 101     -21.   -23.   -59. -2.006 -8.062

JOINT 102      21.   -23.   -59.  2.007 -8.062

JOINT 103       0.    12.   -59.        11.880

JOINT 201      -2.   -19.   -27.        -0.637

JOINT 202       0.   -19.   -27.        -0.637

JOINT 203       2.   -19.   -27.        -0.637

JOINT 204      -9.    -4.   -27.-11.004 -2.233

JOINT 205       9.    -4.   -27. 11.004 -2.233

JOINT 206      -8.    -2.   -27.-11.004 -5.448

JOINT 207      -1.    -2.   -27. -9.001 -5.448

JOINT 208       1.    -2.   -27.  9.001 -5.448

JOINT 209       8.    -2.   -27. 11.004 -5.448

JOINT 210      -7.     0.   -27.-11.843-10.117

JOINT 213       7.     0.   -27. 11.843-10.117
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JOINT 214      -7.     0.   -27. -2.005  6.926
JOINT 215       7.     0.   -27.  2.004  6.925
JOINT 216      -5.     2.   -27.-11.376  8.268
JOINT 221       4.     5.   -27.  6.276  1.884
JOINT 222      -4.     5.   -27. -0.720 11.508
JOINT 223       4.     5.   -27.  0.720 11.508
JOINT 224      -2.     8.   -27. -4.872  9.888
JOINT 227       2.     8.   -27.  4.872  9.888
JOINT 228      -2.     9.   -27. -1.405  3.876
JOINT 229       2.     9.   -27.  1.404  3.875
JOINT 301     -12.   -19.    10. -9.691 -0.669
JOINT 302      -7.   -19.    10. -9.691 -0.669
JOINT 303     -12.   -16.    10. -9.691 -9.544
JOINT 304      -7.   -16.    10. -9.691 -9.544
JOINT 305     -12.   -13.    10. -9.691 -8.544
JOINT 306     -11.   -13.    10. -6.004 -8.544
JOINT 307      -7.   -13.    10. -9.691 -8.544
JOINT 308      -5.   -13.    10. -6.004 -8.544
JOINT 309      -2.   -13.    10.        -8.544
JOINT 310       0.   -13.    10.        -8.544
JOINT 311       2.   -13.    10.        -8.544
JOINT 312     -11.    -9.    10. -6.004 -9.544
JOINT 313      -5.    -9.    10. -6.004 -9.544
JOINT 314      -2.    -9.    10. -5.629 -8.805
JOINT 315     -11.    -6.    10. -6.004-11.138
JOINT 316      -5.    -6.    10. -6.004 -9.544
JOINT 317      -4.    -6.    10. -3.513 -9.544
JOINT 318      -2.    -6.    10. -5.629 -9.544
JOINT 319      -5.    -4.    10. -6.004-10.196
JOINT 320      -9.    -3.    10. -8.407 -9.731
JOINT 321      -6.    -3.    10. -1.740 -9.731
JOINT 322      -2.    -3.    10. -5.629 -9.731
JOINT 323      -8.    -2.    10.-11.844 -6.900
JOINT 324       8.    -2.    10. 11.844 -6.900
JOINT 325      -2.     0.    10. -5.629-10.116
JOINT 326      -1.     0.    10. -9.001-10.116
JOINT 327       1.     0.    10.  9.001-10.116
JOINT 329      -6.     0.    10.-11.844 10.668
JOINT 330       6.     0.    10. 11.844 10.669
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JOINT 331      -5.     2.    10.-11.375  8.256
JOINT 332      -1.     2.    10. -9.000  9.888
JOINT 333       1.     2.    10.  9.000  9.888
JOINT 334      -1.     5.    10. -9.000  1.884
JOINT 335       1.     5.    10.  9.000  1.884
JOINT 336       4.     5.    10.  6.276  1.884
JOINT 337      -4.     5.    10. -0.720 11.508
JOINT 338       4.     5.    10.  0.720 11.508
JOINT 339      -2.     8.    10. -4.872  9.888
JOINT 340      -1.     8.    10. -9.001  9.888
JOINT 341       1.     8.    10.  9.001  9.888
JOINT 342       2.     8.    10.  4.872  9.888
JOINT 343      -2.     9.    10. -1.405  3.876
JOINT 344       2.     9.    10.  1.404  3.875
JOINT 345       8.   -13.    10.  8.502 -8.544
JOINT 346       2.    -9.    10.  5.060 -9.722
JOINT 347      10.   -10.    10.  5.463-11.133
JOINT 348       4.    -7.    10.  1.858 -0.210
JOINT 349      12.    -8.    10.  2.424 -1.722
JOINT 350       5.    -4.    10. 10.657 -2.698
JOINT 351       9.    -4.    10. 11.422 -2.954
JOINT 352      14.    -6.    10.  9.600 -7.721
JOINT 353      12.    -2.    10.  6.599 -8.954
JOINT 354      17.    -5.    10.  4.777 -1.720
JOINT 355      15.    -1.    10.  1.776 -2.954
JOINT 356       2.     0.    10.  5.629-10.116
JOINT 0000     15.    -8.    63.3.681-4-11.880
JOINT 0001     15.     0.    63.3.681-4-11.880
JOINT 0002     15.    -4.    63.3.681-4-11.880
JOINT 0003     20.    -5.    63.  6.000 -0.180
JOINT 0004     20.    -1.    63.  6.000 -0.180
JOINT 0005     -3.   -16.    63.       -11.880
JOINT 0006      9.   -16.    63.3.960-4-11.880
JOINT 0007     20.    -7.    38.  6.000 -3.840
JOINT 0008    -15.     7.    38.-3.67-4 11.880
JOINT 0009    -17.    -3.    28. -2.244-11.879
JOINT 0010     15.     0.    38.3.681-4  0.120
JOINT 0011      9.     0.    38.3.658-4  0.120
JOINT 0012     12.     0.    38.3.670-4  0.120
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JOINT 0013     20.     7.    38.  6.000 11.880

JOINT 0014     14.     7.    38.  8.400 11.880

JOINT 0015     20.     1.    38.  6.000 11.880

JOINT 0016     14.     1.    38.  8.400 11.880

JOINT 0017     20.    16.    38.  6.000  0.120

JOINT 0018    -20.    16.    38.         0.120

JOINT 0019    -15.    16.    38.-3.82-4  0.120

JOINT 001L    -21.   -24.   -66. -9.539 -9.106 -6.375

JOINT 0020    -20.   -16.    63.       -11.880

JOINT 0021    -20.   -20.    63.       -11.880

JOINT 002L     21.   -24.   -66.  9.539 -9.106 -6.375

JOINT 003L      0.    12.   -66.        11.880 -6.375

JOINT 1001    -15.   -20.    -7. -8.004 -7.740

JOINT 1002     15.   -20.    -7.  8.004 -7.740

JOINT 1003    -13.   -25.    -7. -6.936 -5.988

JOINT 1004     13.   -25.    -7.  6.936 -5.988

JOINT 1005     -9.   -20.    -7.-2.78-4 -7.740

JOINT 1006     -6.   -20.    -7.-2.03-4 -7.740

JOINT 1007     -3.   -20.    -7.-1.27-4 -7.740

JOINT 1008      0.   -20.    -7.        -7.740

JOINT 1009      3.   -20.    -7.        -7.740

JOINT 1010      6.   -20.    -7.        -7.740

JOINT 1011      9.   -20.    -7.1.752-4 -7.740

JOINT 1012    -12.   -25.    -7.-4.74-4 -5.988

JOINT 1013     -9.   -25.    -7.-3.99-4 -5.988

JOINT 1014     -6.   -25.    -7.-3.23-4 -5.988

JOINT 1015     -3.   -25.    -7.-2.48-4 -5.988

JOINT 1016      0.   -25.    -7.-1.72-4 -5.988

JOINT 1017      3.   -25.    -7.4.032-4 -5.988

JOINT 1018      6.   -25.    -7.4.790-4 -5.988

JOINT 1019      9.   -25.    -7.  0.001 -5.988

JOINT 101L    -21.   -24.   -62. -5.007 -1.258        222000

JOINT 101P    -21.   -24.   -62. -5.007 -1.258        PILEHD

JOINT 1020     12.   -25.    -7.  0.001 -5.988

JOINT 102C      0.     6.   -62.1.200-4 11.880        001001

JOINT 102L     21.   -24.   -62.  5.008 -1.258        222000

JOINT 102P     21.   -24.   -62.  5.008 -1.258        PILEHD

JOINT 103C      0.     0.   -62.2.400-4 11.880        001001

JOINT 103L      0.    12.   -62.        11.880        222000
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JOINT 103P      0.    12.   -62.        11.880        PILEHD

JOINT 104C     -6.     9.   -62.-4.82-4  3.876        001001

JOINT 105C      6.     9.   -62.3.627-4  3.876        001001

JOINT 1101    -15.   -20.    -2. -8.004 -7.740 -6.000

JOINT 1102     15.   -20.    -2.  8.004 -7.740 -6.000

JOINT 1103    -13.   -25.    -2. -6.936 -5.988 -6.000

JOINT 1104     13.   -25.    -2.  6.936 -5.988 -6.000

JOINT 1105     -9.   -20.    -2.-2.78-4 -7.740 -6.000

JOINT 1106     -6.   -20.    -2.-2.03-4 -7.740 -6.000

JOINT 1107     -3.   -20.    -2.-1.27-4 -7.740 -6.000

JOINT 1108      0.   -20.    -2.        -7.740 -6.000

JOINT 1109      3.   -20.    -2.        -7.740 -6.000

JOINT 1110      6.   -20.    -2.        -7.740 -6.000

JOINT 1111      9.   -20.    -2.1.752-4 -7.740 -6.000

JOINT 1112    -12.   -25.    -2.-4.74-4 -5.988 -6.000

JOINT 1113     -9.   -25.    -2.-3.99-4 -5.988 -6.000

JOINT 1114     -6.   -25.    -2.-3.23-4 -5.988 -6.000

JOINT 1115     -3.   -25.    -2.-2.48-4 -5.988 -6.000

JOINT 1116      0.   -25.    -2.-1.72-4 -5.988 -6.000

JOINT 1117      3.   -25.    -2.4.032-4 -5.988 -6.000

JOINT 1118      6.   -25.    -2.4.790-4 -5.988 -6.000

JOINT 1119      9.   -25.    -2.  0.001 -5.988 -6.000

JOINT 1120     12.   -25.    -2.  0.001 -5.988 -6.000

JOINT 1201    -15.   -20.     2. -8.004 -7.740

JOINT 1202     15.   -20.     2.  8.004 -7.740

JOINT 1203    -13.   -25.     2. -6.936 -5.988

JOINT 1204     13.   -25.     2.  6.936 -5.988

JOINT 1205     -9.   -20.     2.-2.78-4 -7.740

JOINT 1206     -6.   -20.     2.-2.03-4 -7.740

JOINT 1207     -3.   -20.     2.-1.27-4 -7.740

JOINT 1208      0.   -20.     2.        -7.740

JOINT 1209      3.   -20.     2.        -7.740

JOINT 1210      6.   -20.     2.        -7.740

JOINT 1211      9.   -20.     2.1.752-4 -7.740

JOINT 1212    -12.   -25.     2.-4.74-4 -5.988

JOINT 1213     -9.   -25.     2.-3.99-4 -5.988

JOINT 1214     -6.   -25.     2.-3.23-4 -5.988

JOINT 1215     -3.   -25.     2.-2.48-4 -5.988

JOINT 1216      0.   -25.     2.-1.72-4 -5.988
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JOINT 1217      3.   -25.     2.4.032-4 -5.988

JOINT 1218      6.   -25.     2.4.790-4 -5.988

JOINT 1219      9.   -25.     2.  0.001 -5.988

JOINT 1220     12.   -25.     2.  0.001 -5.988

JOINT 1301    -15.   -20.     7. -8.004 -7.740

JOINT 1303    -13.   -25.     7. -6.936 -5.988

JOINT 1305     -9.   -20.     7.-2.78-4 -7.740

JOINT 1306     -6.   -20.     7.-2.03-4 -7.740

JOINT 1307     -3.   -20.     7.-1.27-4 -7.740

JOINT 1308      0.   -20.     7.        -7.740

JOINT 1309    -12.   -25.     7.-4.74-4 -5.988

JOINT 1310     -9.   -25.     7.-3.99-4 -5.988

JOINT 1311     -6.   -25.     7.-3.23-4 -5.988

JOINT 1312      0.   -25.     7.-1.72-4 -5.988

JOINT 1313     -3.   -16.     7.        -9.540

JOINT 1314      0.   -16.     7.1.320-4 -9.540

JOINT 1315      0.   -19.     7.2.001-4-10.548

JOINT 1316     -3.   -25.     7.-2.48-4 -5.988

JOINT 1401    -15.   -20.     8. -8.004 -7.740  6.000

JOINT 1402     15.   -20.     8.  8.004 -7.740  6.000

JOINT 1535      6.    12.    30.1.622-4 11.880  6.000

JOINT 1536     -6.    12.    30.-1.40-4 11.880  6.000

JOINT 2001    -12.   -17.    28. -0.001-11.880

JOINT 2002     -9.   -17.    28.-4.96-4-11.880

JOINT 2003     -6.   -17.    28.-4.20-4-11.880

JOINT 2004    -15.   -12.    28.-3.88-4-11.880

JOINT 2005    -12.   -12.    28.-3.13-4-11.880

JOINT 2006     -9.   -12.    28.-2.37-4-11.880

JOINT 2007     -6.   -12.    28.-1.61-4-11.880

JOINT 2008    -20.   -10.    28.-1.34-4-11.880

JOINT 2009    -17.   -10.    28. -2.244-11.879

JOINT 2010    -14.   -10.    28. -5.999-11.880

JOINT 2011    -12.   -10.    28.       -11.879

JOINT 2012     -9.   -10.    28.-4.34-4-11.880

JOINT 2013    -20.    -7.    28.        -9.636

JOINT 2014    -17.    -7.    28. -2.244 -9.636

JOINT 2015    -14.    -7.    28. -6.000 -9.636

JOINT 2016    -12.    -7.    28.-3.74-4 -9.636

JOINT 2017     -9.    -7.    28.-2.98-4 -9.636
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JOINT 2018     -8.    -7.    28. -0.996 -9.636

JOINT 2019     -6.    -7.    28.-2.22-4 -9.636

JOINT 201L    -18.   -19.   -27. -6.000 -0.637        222000

JOINT 201P    -18.   -19.   -27. -6.000 -0.637

JOINT 201X     -7.     0.    -5.-11.840-10.119-11.678

JOINT 2020    -20.    -3.    28.        -1.200

JOINT 2021    -17.    -3.    28. -2.244 -1.200

JOINT 2022    -14.    -3.    28. -6.000 -1.200

JOINT 2023    -12.    -3.    28.-3.72-4 -1.200

JOINT 2024     -8.    -3.    28. -0.996 -1.200

JOINT 2025     -6.    -3.    28.-2.21-4 -1.200

JOINT 2026     -6.     0.    28.        -1.128

JOINT 2027    -20.     0.    28.        11.868

JOINT 2028    -17.     0.    28. -2.244 11.868

JOINT 2029    -14.     0.    28. -6.000 11.868

JOINT 202C      0.     6.   -27.1.004-4 11.880

JOINT 202G      0.     6.   -27.1.004-4 11.880

JOINT 202L     18.   -19.   -27.  6.000 -0.637        222000

JOINT 202P     18.   -19.   -27.  6.000 -0.637

JOINT 202X     -8.    -2.    -7. -8.326 -0.816 -4.649

JOINT 2030    -12.     0.    28.-3.08-4 11.868

JOINT 2031    -10.     0.    28. -5.000 11.868

JOINT 2032     -8.     0.    28. -0.996 11.868

JOINT 2033     -6.     0.    28.-1.57-4 11.868

JOINT 2034    -20.     6.    28.        11.868

JOINT 2035    -14.     6.    28. -6.000 11.868

JOINT 2036    -10.     6.    28. -5.000 11.868

JOINT 2037     -8.     6.    28. -0.996 11.868

JOINT 2038     -6.     6.    28.-2.46-4 11.868

JOINT 2039    -20.    11.    28.         0.120

JOINT 203C      0.     0.   -27.1.901-4 11.880

JOINT 203G      0.     0.   -27.1.901-4 11.880

JOINT 203L      0.    12.   -27.        11.880        222000

JOINT 203P      0.    12.   -27.        11.880

JOINT 203X     -7.     0.    -4. -3.355  4.578 -6.707

JOINT 2040    -14.    11.    28. -6.000  0.120

JOINT 2041     -9.    11.    28.         0.120

JOINT 2042     -8.    11.    28. -0.996  0.120

JOINT 2043    -10.     0.    30. -5.000 11.868
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JOINT 2044     -6.     0.    30.-1.57-4 11.868

JOINT 2045    -10.     6.    30. -5.000 11.868

JOINT 2046     -6.     6.    30.-2.46-4 11.868

JOINT 204C     -6.     9.   -27.-4.28-4  3.876

JOINT 204G     -6.     9.   -27.-4.28-4  3.876

JOINT 204X      7.     0.    -7. 11.842-10.117 -9.984

JOINT 205C      6.     9.   -27.3.739-4  3.876

JOINT 205G      6.     9.   -27.3.739-4  3.876

JOINT 205X      7.     0.    -9.  4.159  3.189 -4.421

JOINT 206X      8.    -1.    -6.  7.524-11.423 -3.547

JOINT 207X      7.     0.    -3. 11.843-10.116 -6.000

JOINT 208X     -7.     0.    -3.-11.840-10.119 -6.000

JOINT 209X      7.     0.     0. 11.844-10.116 -6.000

JOINT 20C1    -17.   -16.   -11. -2.904-10.476-10.800

JOINT 20C2     17.   -16.   -11.  2.904-10.476-10.800

JOINT 20C3      0.    12.   -11.        11.880-10.800

JOINT 20C4      4.   -16.   -11.  7.896-10.476-10.800

JOINT 20C5      7.     0.   -11. 11.842-10.117-10.800

JOINT 20C6      6.     2.   -11.  3.501  1.112-10.800

JOINT 20C7     -7.     0.   -11.-11.842-10.118-10.800

JOINT 20C8    -10.    -5.   -11.-11.404-11.711-10.800

JOINT 210X     -7.     0.     0.-11.841-10.118 -6.000

JOINT 2B01    -17.   -16.   -10. -1.404 -7.884 -4.800

JOINT 2B02     17.   -16.   -10.  1.404 -7.884 -4.800

JOINT 2B03    -15.   -13.     8. -6.504-11.148  6.000

JOINT 2B04     15.   -13.     8.  6.504-11.148  6.000

JOINT 2B05      0.    12.   -10.        11.880 -4.800

JOINT 2P01    -16.   -15.    -2. -5.004 -5.335

JOINT 2P02     16.   -15.    -2.  5.004 -5.335

JOINT 2P03      0.    12.    -5.        11.880-11.678

JOINT 2P06      0.    12.     5.        11.880

JOINT 2P08    -15.   -20.    -8. -8.004 -7.740 -2.000

JOINT 2P09     15.   -20.    -8.  8.004 -7.740 -2.000

JOINT 2P13    -15.   -14.     5.-10.004 -5.210

JOINT 2P15     15.   -14.     5. 10.004 -5.210

JOINT 2P16      0.    12.     8.        11.880  6.000

JOINT 3001    -20.   -24.    38.       -11.880

JOINT 3002    -17.   -24.    38. -6.000-11.880

JOINT 3003    -15.   -24.    38. -0.001-11.880
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JOINT 3004    -12.   -24.    38. -0.001-11.880

JOINT 3005     -9.   -24.    38.       -11.880

JOINT 3006     -6.   -24.    38.       -11.880

JOINT 3007     -3.   -24.    38.       -11.880

JOINT 3008      0.   -24.    38.1.687-4-11.880

JOINT 3009      3.   -24.    38.2.444-4-11.880

JOINT 3010      6.   -24.    38.3.202-4-11.880

JOINT 3011      9.   -24.    38.3.960-4-11.880

JOINT 3012     12.   -24.    38.4.718-4-11.880

JOINT 3013     15.   -24.    38.  0.001-11.880

JOINT 3014     17.   -24.    38.  9.001-11.880

JOINT 3015     20.   -24.    38.  6.000-11.880

JOINT 3016    -20.   -20.    38.       -10.884

JOINT 3017    -17.   -20.    38. -6.000-10.884

JOINT 3018    -15.   -20.    38.-3.21-4-10.884

JOINT 3019    -12.   -20.    38.-2.46-4-10.884

JOINT 301L    -15.   -13.    10. -5.004 -8.544        222000

JOINT 301P    -15.   -13.    10. -5.004 -8.544

JOINT 3020     -9.   -20.    38.-1.70-4-10.884

JOINT 3021     -6.   -20.    38.       -10.884

JOINT 3022     -3.   -20.    38.       -10.884

JOINT 3023      0.   -20.    38.       -10.884

JOINT 3024      3.   -20.    38.1.319-4-10.884

JOINT 3025      6.   -20.    38.2.077-4-10.884

JOINT 3026      9.   -20.    38.2.835-4-10.884

JOINT 3027     12.   -20.    38.3.593-4-10.884

JOINT 3028     15.   -20.    38.4.350-4-10.884

JOINT 3029     17.   -20.    38.  9.001-10.884

JOINT 302C      0.     6.    10.1.004-4 11.880

JOINT 302G      0.     6.    10.1.004-4 11.880

JOINT 302L     15.   -13.    10.  5.004 -8.544        222000

JOINT 302P     15.   -13.    10.  5.004 -8.544

JOINT 3030     20.   -20.    38.  6.000-10.884

JOINT 3031    -20.   -16.    38.       -11.880

JOINT 3032    -17.   -16.    38. -6.000-11.880

JOINT 3033    -15.   -16.    38.-4.95-4-11.880

JOINT 3034    -12.   -16.    38.-4.19-4-11.880

JOINT 3035     -9.   -16.    38.-3.44-4-11.880

JOINT 3036     -6.   -16.    38.-2.68-4-11.880
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JOINT 3037     -3.   -16.    38.-1.93-4-11.880

JOINT 3038      0.   -16.    38.-1.17-4-11.880

JOINT 3039      3.   -16.    38.       -11.880

JOINT 303C      0.     0.    10.1.901-4 11.880

JOINT 303G      0.     0.    10.1.901-4 11.880

JOINT 303L      0.    12.    10.        11.880        222000

JOINT 303P      0.    12.    10.        11.880

JOINT 3040      6.   -16.    38.       -11.880

JOINT 3041      9.   -16.    38.1.097-4-11.880

JOINT 3042     12.   -16.    38.1.855-4-11.880

JOINT 3043     15.   -16.    38.  0.001-11.880

JOINT 3044     17.   -16.    38.  9.000-11.880

JOINT 3045     20.   -16.    38.  6.000-11.880

JOINT 3046    -20.   -12.    38.       -11.880

JOINT 3047    -17.   -12.    38. -6.000-11.880

JOINT 3049    -12.   -12.    38.-3.13-4-11.880

JOINT 304C     -6.     9.    10.-4.28-4  3.876

JOINT 304G     -6.     9.    10.-4.28-4  3.876

JOINT 3050     -9.   -12.    38.-2.37-4-11.880

JOINT 3051     -6.   -12.    38.-1.61-4-11.880

JOINT 3052     -3.   -12.    38.       -11.880

JOINT 3053      0.   -12.    38.       -11.880

JOINT 3054      1.   -12.    38.  3.996-11.880

JOINT 3055      3.   -12.    38.       -11.880

JOINT 3056      6.   -12.    38.1.407-4-11.880

JOINT 3057      9.   -12.    38.2.165-4-11.880

JOINT 3058     12.   -12.    38.2.923-4-11.880

JOINT 305C      6.     9.    10.3.739-4  3.876

JOINT 305G      6.     9.    10.3.739-4  3.876

JOINT 3060     17.   -12.    38.  9.000-11.880

JOINT 3061     20.   -12.    38.  6.000-11.880

JOINT 3062    -20.   -10.    38.       -10.884

JOINT 3063     -9.   -10.    38.-1.53-4-10.884

JOINT 3064      3.    -8.    38.        -1.980

JOINT 3065      6.    -8.    38.        -1.980

JOINT 3066    -20.    -7.    38.        -9.600

JOINT 3067    -17.    -7.    38. -6.000 -9.600

JOINT 3068    -15.    -7.    38.-3.61-4 -9.600

JOINT 3069    -12.    -7.    38.-2.85-4 -9.600
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JOINT 3070 -9. -7. 38.-2.10-4 -9.600

JOINT 3071 -6. -7. 38.-1.34-4 -9.600

JOINT 3072 -3. -7. 38. -9.600

JOINT 3073 0. -7. 38. -9.600

JOINT 3074 1. -7. 38. 3.996 -9.600

JOINT 3075 3. -7. 38. -9.600

JOINT 3076 6. -7. 38.1.681-4 -9.600

JOINT 3077 9. -7. 38.2.439-4 -9.600

JOINT 3078 12. -7. 38.3.197-4 -9.600

JOINT 3079 15. -7. 38.3.954-4 -9.600

JOINT 3080 17. -7. 38. 9.000 -9.600

JOINT 3081 20. -7. 38. 6.000 -9.600

JOINT 3082 3. -6. 38.1.390-4 -2.724

JOINT 3083 6. -6. 38.2.148-4 -2.724

JOINT 3084 -6. -5. 38.-3.62-4 -7.120

JOINT 3085 9. -5. 38.2.438-4 -7.120

JOINT 3086 6. -4. 38.1.066-4 -2.688

JOINT 3087 9. -4. 38.1.824-4 -2.688

JOINT 3088 -9. -2. 38.-3.28-4 -7.176

JOINT 3089 6. -2. 38. -7.176

JOINT 3090 9. -2. 38.1.251-4 -7.176

JOINT 3091 -20. -2. 38.-1.91-4 -0.120

JOINT 3092 -17. -2. 38. -6.001 -0.120

JOINT 3093 -15. -2. 38. -0.001 -0.120

JOINT 3094 -12. -2. 38. -0.001 -0.120

JOINT 3095 -9. -2. 38.-4.91-4 -0.120

JOINT 3096 -8. -2. 38. -7.920 -0.121

JOINT 3097 -6. -2. 38.-4.16-4 -0.120

JOINT 3098 -3. -2. 38.-3.40-4 -0.120

JOINT 3099 0. -2. 38.-2.64-4 -0.120

JOINT 3100 3. -2. 38.3.107-4 -0.120

JOINT 3101 6. -2. 38.3.865-4 -0.120

JOINT 3102 8. -2. 38. 7.919 -0.120

JOINT 3103 9. -2. 38. -0.121

JOINT 3104 12. -2. 38. -0.121

JOINT 3105 15. -2. 38. -0.121

JOINT 3106 17. -2. 38. 8.999 -0.120

JOINT 3107 20. -2. 38. 6.000 -0.121

JOINT 3108 -6. 0. 38.-1.97-4 -1.104

JOINT 3109 -3. 0. 38.-3.85-4 11.880

JOINT 3111 3. 0. 38.2.658-4 11.880

JOINT 3112 -20. 0. 38. 11.904

JOINT 3113 -9. 0. 38.-1.44-4 11.904

JOINT 3114 -6. 2. 38. 7.176

JOINT 3115 6. 2. 38.2.536-4 7.176

JOINT 3116 -3. 3. 38.-2.63-4 3.876

JOINT 3117 3. 3. 38.3.878-4 3.876

JOINT 3118 -20. 3. 38. 11.880

JOINT 3119 -17. 3. 38. -6.000 11.880

JOINT 3120 -15. 3. 38. -0.001 11.880

JOINT 3121 -12. 3. 38. -0.001 11.880

JOINT 3123 -6. 3. 38. 11.880

JOINT 3124 -5. 3. 38. -2.351 11.880

JOINT 3125 -3. 3. 38. 11.880

JOINT 3126 0. 3. 38.1.453-4 11.880

JOINT 3127 3. 3. 38.2.210-4 11.880

JOINT 3128 5. 3. 38. 2.351 11.880

JOINT 3129 6. 3. 38.2.968-4 11.880

JOINT 3131 12. 3. 38.4.484-4 11.880

JOINT 3132 15. 3. 38. 0.001 11.880

JOINT 3133 17. 3. 38. 8.999 11.880

JOINT 3134 20. 3. 38. 6.000 11.880

JOINT 3135 -3. 6. 38. -5.568 11.880

JOINT 3136 -3. 6. 38. 11.880

JOINT 3138 3. 6. 38.1.761-4 11.880

JOINT 3139 3. 6. 38. 5.568 11.880

JOINT 3140 -3. 7. 38.-2.69-4 9.528

JOINT 3141 3. 7. 38.3.821-4 9.528

JOINT 3142 -20. 9. 38.-2.04-4 3.877

JOINT 3143 -17. 9. 38. -6.001 3.877

JOINT 3144 -15. 9. 38. -0.001 3.876

JOINT 3145 -12. 9. 38. -0.001 3.876

JOINT 3146 -9. 9. 38. -0.001 3.876

JOINT 3147 -6. 9. 38.-4.28-4 3.876

JOINT 3148 -3. 9. 38.-3.53-4 3.876

JOINT 3149 3. 9. 38.2.980-4 3.876

JOINT 3150 6. 9. 38.3.739-4 3.876

JOINT 3151 9. 9. 38. 3.875

JOINT 3152 12. 9. 38. 3.875

JOINT 3153 15. 9. 38. 3.875

JOINT 3154 17. 9. 38. 8.999 3.876

JOINT 3155 20. 9. 38. 6.000 3.875

JOINT 3156 -3. 9. 38. 11.880

JOINT 3157 -1. 9. 38. -8.784 11.880

JOINT 3158 0. 9. 38. 11.880

JOINT 3159 1. 9. 38. 8.784 11.880

JOINT 3160 3. 9. 38.1.312-4 11.880

JOINT 3161 -20. 11. 38. 0.120

JOINT 3162 -9. 11. 38. 0.120

JOINT 3163 -20. 12. 38. 11.880

JOINT 3164 -17. 12. 38. -6.000 11.880

JOINT 3166 -12. 12. 38.-2.91-4 11.880

JOINT 3167 -9. 12. 38.-2.16-4 11.880

JOINT 3168 -6. 12. 38.-1.40-4 11.880

JOINT 3169 -3. 12. 38. 11.880

JOINT 3170 0. 12. 38. 11.880

JOINT 3171 3. 12. 38. 11.880

JOINT 3172 6. 12. 38.1.622-4 11.880

JOINT 3173 9. 12. 38.2.380-4 11.880

JOINT 3174 12. 12. 38.3.138-4 11.880

JOINT 3176 17. 12. 38. 9.000 11.880

JOINT 3177 20. 12. 38. 6.000 11.880

JOINT 3178 -12. 14. 38.-2.44-4 11.880

JOINT 3179 -3. 14. 38. 11.880

JOINT 3180 3. 14. 38.1.212-4 11.880

JOINT 3181 12. 14. 38.3.594-4 11.880

JOINT 3182 -9. 15. 38. -0.001 9.876

JOINT 3183 -6. 15. 38.-4.42-4 9.876

JOINT 3184 -20. 20. 38. 0.120

JOINT 3185 -17. 20. 38. -6.000 0.120

JOINT 3186 -15. 20. 38.-3.82-4 0.120

JOINT 3187 -12. 20. 38.-3.06-4 0.120

JOINT 3188 -9. 20. 38.-2.31-4 0.120

JOINT 3189 -6. 20. 38.-1.55-4 0.120

JOINT 3190 -3. 20. 38. 0.120

JOINT 3191 0. 20. 38. 0.120

JOINT 3192 3. 20. 38. 0.120

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JOINT 3193      6.    20.    38.1.472-4  0.120

JOINT 3194      9.    20.    38.2.230-4  0.120

JOINT 3195     12.    20.    38.2.988-4  0.120

JOINT 3196     15.    20.    38.3.745-4  0.120

JOINT 3197     17.    20.    38.  9.000  0.120

JOINT 3198     20.    20.    38.  6.000  0.120

JOINT 3L01    -15.   -12.    38.-3.88-4-11.880        222000

JOINT 3L02     15.   -12.    38.3.681-4-11.880        222000

JOINT 3L03    -15.    12.    38.-3.67-4 11.880        222000

JOINT 3L04     15.    12.    38.3.895-4 11.880        222000

JOINT 4001     -6.    -5.    46.-3.62-4 -7.120

JOINT 4002     -2.    -5.    46. -7.000 -7.120

JOINT 4003      0.    -5.    46.-1.08-4 -7.120

JOINT 4004      1.    -5.    46.  6.000 -7.120

JOINT 4005      4.    -5.    46.  6.000 -7.120

JOINT 4006      9.    -5.    46.        -7.120

JOINT 4007     -6.    -2.    46.-4.16-4 -0.120

JOINT 4008     -3.    -2.    46.-3.40-4 -0.120

JOINT 4009     -2.    -2.    46. -7.000 -0.120

JOINT 4010      0.    -2.    46.-2.64-4 -0.120

JOINT 4011      1.    -2.    46.  6.000 -0.120

JOINT 4012      3.    -2.    46.3.107-4 -0.120

JOINT 4013      4.    -2.    46.  6.000 -0.120

JOINT 4014      6.    -2.    46.4.320-4 -0.120

JOINT 4015      9.    -2.    46.3.877-4 -0.120

JOINT 4016     -3.     0.    46.-1.12-4 -6.120

JOINT 4017      3.     0.    46.        -6.120

JOINT 4018     -6.     0.    46.-3.88-4 -1.120

JOINT 4019     -3.     0.    46.-1.18-4 -1.120

JOINT 401L    -15.   -13.    12. -3.000 -5.076

JOINT 4020      3.     0.    46.         1.876

JOINT 4021      6.     0.    46.4.448-4  1.876

JOINT 4022     -3.     2.    46.-1.57-4  5.880

JOINT 4023      3.     2.    46.         5.880

JOINT 4024    -12.     3.    46.-4.90-4  3.876

JOINT 4025     -9.     3.    46.-4.14-4  3.876

JOINT 4026     -6.     3.    46. -5.000  3.876

JOINT 4027     -6.     3.    46.-3.39-4  3.876

JOINT 4028     -3.     3.    46.-2.63-4  3.876
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JOINT 4029      3.     3.    46.3.878-4  3.876

JOINT 402C      0.     6.    13.1.004-4 11.880

JOINT 402L     15.   -13.    12.  3.000 -5.076

JOINT 4030      6.     3.    46.4.636-4  3.876

JOINT 4031      9.     3.    46.  0.001  3.876

JOINT 4032     12.     3.    46.  0.001  3.876

JOINT 4033     -3.     3.    46.        11.880

JOINT 4034      3.     3.    46.2.210-4 11.880

JOINT 4035     -3.     5.    46.-2.02-4  5.880

JOINT 4036      3.     5.    46.         5.880

JOINT 4037    -12.     6.    46.         3.877

JOINT 4038     -9.     6.    46.         3.877

JOINT 4039     -6.     6.    46. -5.000  3.877

JOINT 403C      0.     0.    13.1.901-4 11.880

JOINT 403L      0.    12.    12.        11.880

JOINT 4040     -3.     6.    46.-3.08-4  3.876

JOINT 4041      3.     6.    46.3.429-4  3.876

JOINT 4042      6.     6.    46.4.642-4  3.876

JOINT 4043      9.     6.    46.4.945-4  3.876

JOINT 4044     12.     6.    46.  0.001  3.876

JOINT 4045     -9.     7.    46.-2.31-4  9.876

JOINT 4046     -3.     7.    46.         9.876

JOINT 4047      3.     7.    46.         9.876

JOINT 4048      9.     7.    46.2.221-4  9.876

JOINT 4049     -3.     8.    46.-2.47-4  5.880

JOINT 404C     -6.     9.    13.-4.28-4  3.876

JOINT 4050      3.     8.    46.         5.880

JOINT 4051      9.     9.    46.1.934-4  8.876

JOINT 4052     12.     9.    46.  0.001  8.876

JOINT 4053     -3.     9.    46.        11.880

JOINT 4054      3.     9.    46.1.312-4 11.880

JOINT 4055     -9.    10.    46.-2.76-4  9.876

JOINT 4056     -3.    10.    46.-1.25-4  9.876

JOINT 4057      3.    10.    46.         9.876

JOINT 4058      9.    10.    46.1.772-4  9.876

JOINT 4059     -3.    11.    46.-2.92-4  5.880

JOINT 405C      6.     9.    13.3.739-4  3.876

JOINT 4060      3.    11.    46.3.588-4  5.880

JOINT 4061    -12.    12.    46. -0.001  3.876
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JOINT 4062     -9.    12.    46. -0.001  3.876
JOINT 4063     -3.    12.    46.-3.98-4  3.877
JOINT 4064      3.    12.    46.2.532-4  3.876
JOINT 4065      9.    12.    46.4.048-4  3.876
JOINT 4066     12.    12.    46.4.806-4  3.876
JOINT 4067     -3.    14.    46.         5.880
JOINT 4068      3.    14.    46.3.139-4  5.880
JOINT 4069    -12.    14.    46.-2.68-4 11.880
JOINT 4070     -9.    14.    46.-1.93-4 11.880
JOINT 4071     -6.    14.    46.-1.17-4 11.880
JOINT 4072     -3.    14.    46.        11.880
JOINT 4073      3.    14.    46.1.092-4 11.880
JOINT 4074      6.    14.    46.1.850-4 11.880
JOINT 4075      9.    14.    46.2.608-4 11.880
JOINT 4076     12.    14.    46.3.366-4 11.880
JOINT 4077     -3.    15.    46.-1.09-4 11.880
JOINT 4078      0.    15.    46.        11.880
JOINT 4079      3.    15.    46.        11.880
JOINT 4080     -6.    16.    46.-1.29-4  7.130
JOINT 4081     -3.    16.    46.         7.130
JOINT 4082     -3.    18.    46.        11.880
JOINT 4083      0.    18.    46.        11.880
JOINT 4084     -6.    20.    46.-1.55-4  0.120
JOINT 4085     -3.    20.    46.         0.120
JOINT 4086      0.    20.    46.         0.120
JOINT 4087      3.    20.    46.         0.120
JOINT 4088      6.    20.    46.1.472-4  0.120
JOINT 411L    -15.   -12.    15.-3.88-4-11.880
JOINT 412L     15.   -12.    15.3.681-4-11.880
JOINT 413L      0.    12.    15.        11.880
JOINT 5001     15.   -26.    63.  0.001-11.880
JOINT 5002    -20.   -24.    63.       -11.880
JOINT 5003    -17.   -24.    63. -6.000-11.880
JOINT 5004    -15.   -24.    63. -0.001-11.880
JOINT 5005     -3.   -24.    63.       -11.880
JOINT 5006      0.   -24.    63.1.687-4-11.880
JOINT 5007      3.   -24.    63.2.444-4-11.880
JOINT 5008      6.   -24.    63.3.202-4-11.880
JOINT 5009      9.   -24.    63.3.960-4-11.880
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JOINT 5010     12.   -24.    63.4.718-4-11.880
JOINT 5011     15.   -24.    63.  0.001-11.880
JOINT 5012     17.   -24.    63.  6.000-11.880
JOINT 5013     20.   -24.    63.  6.000-11.880
JOINT 5014     25.   -24.    63.  7.500-11.880
JOINT 5015    -20.   -21.    63.        -5.880
JOINT 5016    -17.   -21.    63. -6.000 -5.881
JOINT 5017    -15.   -21.    63. -0.001 -5.880
JOINT 5018    -15.   -20.    63.-3.02-4 -9.384
JOINT 5019    -12.   -20.    63.-2.27-4 -9.384
JOINT 501L    -15.   -12.    21.-3.59-4-11.880
JOINT 5020     -9.   -20.    63.-1.51-4 -9.384
JOINT 5021     -6.   -20.    63.        -9.384
JOINT 5022     -3.   -20.    63.        -9.384
JOINT 5023    -20.   -18.    63.       -11.880
JOINT 5024    -17.   -18.    63. -6.000-11.880
JOINT 5025    -15.   -18.    63.-2.98-4-11.880
JOINT 5026    -12.   -18.    63.-2.23-4-11.880
JOINT 5027     -9.   -18.    63.-1.47-4-11.880
JOINT 5028     -6.   -18.    63.       -11.880
JOINT 5029     -3.   -18.    63.       -11.880
JOINT 502C      0.     6.    38.1.004-4 11.880
JOINT 502L     15.   -12.    21.3.605-4-11.880
JOINT 5030      0.   -18.    63.       -11.880
JOINT 5031      3.   -18.    63.1.547-4-11.880
JOINT 5032      6.   -18.    63.2.305-4-11.880
JOINT 5033      9.   -18.    63.3.063-4-11.880
JOINT 5034     12.   -18.    63.3.821-4-11.880
JOINT 5035     15.   -18.    63.4.578-4-11.880
JOINT 5036     17.   -18.    63.  6.000-11.880
JOINT 5037     20.   -18.    63.  6.000-11.880
JOINT 5038     25.   -18.    63.  7.500-11.880
JOINT 5039    -20.   -16.    63.        -5.880
JOINT 503C      0.     0.    38.1.901-4 11.880
JOINT 503L      0.    12.    21.        11.880
JOINT 5040    -17.   -16.    63. -6.000 -5.880
JOINT 5041    -15.   -16.    63.-4.19-4 -5.880
JOINT 5042    -20.   -12.    63.       -11.880
JOINT 5043    -17.   -12.    63. -6.000-11.880
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JOINT 5044 -12. -12. 63.-3.13-4-11.880

JOINT 5045   -9. -12. 63.-2.37-4-11.880

JOINT 5046   -6. -12. 63.-1.61-4-11.880

JOINT 5047   -3. -12. 63.   -11.880

JOINT 5048   0. -12. 63.   -11.880

JOINT 5049   3. -12. 63.   -11.880

JOINT 504C   -9.   3. 38.   11.880

JOINT 5050   6. -12. 63.1.407-4-11.880

JOINT 5051   9. -12. 63.2.165-4-11.880

JOINT 5052   12. -12. 63.2.923-4-11.880

JOINT 5053   17. -12. 63. 6.000-11.880

JOINT 5054   20. -12. 63. 6.000-11.880

JOINT 5055   25. -12. 63. 7.500-11.880

JOINT 5056 -25.   -9. 63. -1.500 -0.181

JOINT 5057 -22.   -9. 63. -8.748 -0.180

JOINT 5058 -20.   -9. 63.   -0.180

JOINT 5059 -17.   -9. 63. -6.000 -0.181

JOINT 505C   9.   3. 38.3.726-4 11.880

JOINT 5060   17.   -9. 63. 6.000 -0.180

JOINT 5061   20.   -9. 63. 6.000 -0.180

JOINT 5062   23.   -9. 63. 2.750 -0.180

JOINT 5063   25.   -9. 63. 7.500 -0.180

JOINT 5064   3.   -8. 63.2.666-4 -4.380

JOINT 5065   6.   -8. 63.3.424-4 -4.380

JOINT 5066   3.   -6. 63.3.885-4 -0.384

JOINT 5067   6.   -6. 63.4.643-4 -0.384

JOINT 5068 -25.   -5. 63. -1.500 -7.560

JOINT 5069 -22.   -5. 63. -8.748 -7.560

JOINT 5070 -20.   -5. 63.   -7.560

JOINT 5071 -17.   -5. 63. -6.000 -7.560

JOINT 5072   20.   -5. 63. 6.000 -7.559

JOINT 5073   23.   -5. 63. 2.750 -7.559

JOINT 5074   25.   -5. 63. 7.500 -7.559

JOINT 5075 -20.   -2. 63.-1.91-4 -0.120

JOINT 5076 -17.   -2. 63. -6.000 -0.121

JOINT 5077 -15.   -2. 63. -0.001 -0.120

JOINT 5078 -12.   -2. 63. -0.001 -0.120

JOINT 5079   -9.   -2. 63.-4.91-4 -0.120

JOINT 5080   -6.   -2. 63.-4.16-4 -0.120

JOINT 5081 -3. -2. 63.-3.40-4 -0.120

JOINT 5082 0. -2. 63.-2.64-4 -0.120

JOINT 5083 3. -2. 63.3.107-4 -0.120

JOINT 5084 6. -2. 63.3.865-4 -0.120

JOINT 5085 9. -2. 63. -0.121

JOINT 5086 12. -2. 63. -0.121

JOINT 5087 15. -2. 63. -0.121

JOINT 5088 17. -2. 63. 5.999 -0.120

JOINT 5089 20. -2. 63. 6.000 -0.121

JOINT 5090 -25. 0. 63. -1.500 -1.368

JOINT 5091 -22. 0. 63. -8.748 -1.368

JOINT 5092 -20. 0. 63. -1.368

JOINT 5093 -17. 0. 63. -6.000 -1.368

JOINT 5094 20. 0. 63. 6.000 -1.367

JOINT 5095 23. 0. 63. 2.750 -1.367

JOINT 5096 25. 0. 63. 7.500 -1.367

JOINT 5097 15. 1. 63.3.895-4 6.840

JOINT 5098 17. 1. 63. 6.000 6.840

JOINT 5099 20. 1. 63. 6.000 6.840

JOINT 50C1 -15. -12. 31.-3.88-4-11.880

JOINT 50C2 15. -12. 31.3.681-4-11.880

JOINT 50C3 0. 12. 31. 11.880

JOINT 5100 -20. 3. 63. 11.880

JOINT 5101 -17. 3. 63. -6.000 11.880

JOINT 5102 -15. 3. 63. -0.001 11.880

JOINT 5103 -12. 3. 63. -0.001 11.880

JOINT 5104 -9. 3. 63. 11.880

JOINT 5105 -6. 3. 63. 11.880

JOINT 5106 -3. 3. 63. 11.880

JOINT 5107 3. 3. 63.2.210-4 11.880

JOINT 5108 6. 3. 63.2.968-4 11.880

JOINT 5109 9. 3. 63.3.726-4 11.880

JOINT 5110 12. 3. 63.4.484-4 11.880

JOINT 5111 15. 3. 63. 0.001 11.880

JOINT 5112 -25. 5. 63. -1.500 4.824

JOINT 5113 -22. 5. 63. -8.748 4.824

JOINT 5114 -20. 5. 63. 4.824

JOINT 5115 -17. 5. 63. -6.000 4.824

JOINT 5116 20. 5. 63. 6.000 4.825

JOINT 5117 23. 5. 63. 2.750 4.825

JOINT 5118 25. 5. 63. 7.500 4.825

JOINT 5119 15. 7. 63.3.895-4 5.880

JOINT 5120 17. 7. 63. 6.000 5.880

JOINT 5121 20. 7. 63. 6.000 5.880

JOINT 5122 -25. 8. 63. -1.500 9.444

JOINT 5123 -22. 8. 63. -8.748 9.444

JOINT 5124 -20. 8. 63. 9.444

JOINT 5125 -17. 8. 63. -6.000 9.444

JOINT 5126 20. 8. 63. 6.000 9.445

JOINT 5127 23. 8. 63. 2.750 9.445

JOINT 5128 25. 8. 63. 7.500 9.445

JOINT 5129 -3. 9. 63. 11.880

JOINT 5130 3. 9. 63.1.312-4 11.880

JOINT 5132 20. 10. 63. 6.000 0.684

JOINT 5133 -20. 12. 63. 11.880

JOINT 5134 -17. 12. 63. -6.000 11.880

JOINT 5135 -12. 12. 63.-2.91-4 11.880

JOINT 5136 -9. 12. 63.-2.16-4 11.880

JOINT 5137 -6. 12. 63.-1.40-4 11.880

JOINT 5138 -3. 12. 63. 11.880

JOINT 5139 3. 12. 63. 11.880

JOINT 513L 0. 12. 25. 11.880 6.000

JOINT 5140 6. 12. 63.1.622-4 11.880

JOINT 5141 9. 12. 63.2.380-4 11.880

JOINT 5142 12. 12. 63.3.138-4 11.880

JOINT 5143 17. 12. 63. 6.000 11.880

JOINT 5144 20. 12. 63. 6.000 11.880

JOINT 5145 17. 15. 63. 6.000 6.876

JOINT 5146 20. 15. 63. 6.000 6.876

JOINT 5147 -20. 16. 63. 1.632

JOINT 5148 -17. 16. 63. -6.000 1.632

JOINT 5149 -15. 16. 63. -0.001 1.632

JOINT 5150 -12. 16. 63.-1.98-4 1.632

JOINT 5151 -9. 16. 63.-1.22-4 1.632

JOINT 5152 -6. 16. 63. 1.632

JOINT 5153 -3. 16. 63. 1.632

JOINT 5154 0. 16. 63.1.039-4 1.632

JOINT 5155 3. 16. 63.1.796-4 1.632

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JOINT 5156      6.    16.    63.2.554-4  1.632

JOINT 5157      9.    16.    63.3.313-4  1.632

JOINT 5158     12.    16.    63.4.071-4  1.632

JOINT 5159     15.    16.    63.4.828-4  1.632

JOINT 5160    -20.    20.    63.

JOINT 5161    -17.    20.    63. -6.000

JOINT 5162    -15.    20.    63.-3.43-4

JOINT 5163    -12.    20.    63.-2.68-4

JOINT 5164     -9.    20.    63.-1.92-4

JOINT 5165     -6.    20.    63.-1.17-4

JOINT 5166     -3.    20.    63.

JOINT 5167      0.    20.    63.

JOINT 5168      3.    20.    63.1.099-4

JOINT 5169      6.    20.    63.1.857-4

JOINT 5170      9.    20.    63.2.615-4

JOINT 5171     12.    20.    63.3.373-4

JOINT 5172     15.    20.    63.4.130-41.521-4

JOINT 5173     17.    20.    63.  6.000

JOINT 5174     20.    20.    63.  6.000

JOINT 523L      0.    12.    29.        11.880  3.000

JOINT 542L     15.   -12.    26.3.649-4-11.880  9.720

JOINT 543L      0.    12.    26.        11.880  9.720

JOINT 5L01    -15.   -12.    63.-3.88-4-11.880        222000

JOINT 5L02     15.   -12.    63.3.681-4-11.880        222000

JOINT 5L03    -15.    12.    63.-3.67-4 11.880        222000

JOINT 5L04     15.    12.    63.3.895-4 11.880        222000

JOINT 601C      0.    12.    40.        11.880

JOINT 602C      0.     6.    40.1.004-4 11.880

JOINT 603C      0.     0.    40.1.901-4 11.880

JOINT 604C     -6.     9.    40.-4.28-4  3.876

JOINT 605C      6.     9.    40.3.739-4  3.876

JOINT 60C3      0.    12.    35.        11.880

JOINT 7000    -15.   -12.    82.-3.59-4-11.880        222000

JOINT M001    -21.   -31.   -62. -5.007 -1.257

JOINT M002    -17.   -31.   -62. -0.875 -1.258

JOINT M003    -13.   -31.   -62.-11.625 -1.257

JOINT M004    -10.   -31.   -62.-10.375 -1.258

JOINT M005     -7.   -31.   -62. -9.125 -1.257

JOINT M006     -4.   -31.   -62. -7.875 -1.258
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JOINT M007     -1.   -31.   -62. -6.625 -1.258
JOINT M008      1.   -31.   -62.  6.625 -1.258
JOINT M009      4.   -31.   -62.  7.875 -1.258
JOINT M010      7.   -31.   -62.  9.126 -1.258
JOINT M011     10.   -31.   -62. 10.375 -1.258
JOINT M012     13.   -31.   -62. 11.625 -1.257
JOINT M013     17.   -31.   -62.  0.875 -1.258
JOINT M014     21.   -31.   -62.  5.008 -1.258
JOINT M015    -23.   -29.   -62. -3.375 -5.886
JOINT M016     23.   -29.   -62.  3.375 -5.886
JOINT M017    -26.   -26.   -62. -4.625 -9.626
JOINT M018     26.   -26.   -62.  4.625 -9.626
JOINT M019    -29.   -24.   -62. -6.000 -1.258
JOINT M020    -26.   -24.   -62. -4.625 -1.258
JOINT M021    -23.   -24.   -62. -3.375 -1.258
JOINT M024    -17.   -24.   -62. -0.875 -1.258
JOINT M025    -13.   -24.   -62.-11.626 -1.258
JOINT M026    -10.   -24.   -62.-10.375 -1.258
JOINT M027     -7.   -24.   -62. -9.125 -1.258
JOINT M028     -4.   -24.   -62. -7.875 -1.258
JOINT M029     -2.   -24.   -62.-2.09-4 -1.258
JOINT M030     -1.   -24.   -62. -6.625 -1.258
JOINT M031      0.   -24.   -62.1.290-4 -1.258
JOINT M032      1.   -24.   -62.  6.625 -1.258
JOINT M033      2.   -24.   -62.4.681-4 -1.258
JOINT M034      4.   -24.   -62.  7.875 -1.258
JOINT M035      7.   -24.   -62.  9.125 -1.258
JOINT M036     10.   -24.   -62. 10.375 -1.258
JOINT M037     13.   -24.   -62. 11.625 -1.257
JOINT M038     17.   -24.   -62.  0.875 -1.258
JOINT M041     23.   -24.   -62.  3.375 -1.258
JOINT M042     26.   -24.   -62.  4.625 -1.258
JOINT M043     29.   -24.   -62.  6.000 -1.258
JOINT M044    -20.   -21.   -62. -2.125-11.483
JOINT M045     20.   -21.   -62.  2.124-11.482
JOINT M046     -1.   -21.   -62. -6.625 -4.999
JOINT M047      1.   -21.   -62.  6.625 -4.999
JOINT M048    -26.   -18.   -62. -4.625 -8.496
JOINT M049     26.   -18.   -62.  4.625 -8.496
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JOINT M050    -25.   -17.   -62.-10.933-10.633
JOINT M051    -23.   -17.   -62. -3.375-10.633
JOINT M052    -20.   -17.   -62. -2.125-10.633
JOINT M053    -17.   -17.   -62. -9.921-10.633
JOINT M054    -17.   -17.   -62. -0.875-10.633
JOINT M055    -13.   -17.   -62.-11.625-10.633
JOINT M056    -10.   -17.   -62.-10.375-10.633
JOINT M057     -7.   -17.   -62. -9.125-10.633
JOINT M058     -4.   -17.   -62. -7.875-10.633
JOINT M059     -3.   -17.   -62. -7.086-10.633
JOINT M060     -1.   -17.   -62. -6.625-10.633
JOINT M061      1.   -17.   -62.  6.625-10.633
JOINT M062      3.   -17.   -62.  7.086-10.633
JOINT M063      4.   -17.   -62.  7.875-10.633
JOINT M064      7.   -17.   -62.  9.125-10.633
JOINT M065     10.   -17.   -62. 10.375-10.633
JOINT M066     13.   -17.   -62. 11.625-10.633
JOINT M067     17.   -17.   -62.  0.875-10.633
JOINT M068     17.   -17.   -62.  9.921-10.633
JOINT M069     20.   -17.   -62.  2.125-10.633
JOINT M070     23.   -17.   -62.  3.375-10.633
JOINT M071     25.   -17.   -62. 10.933-10.633
JOINT M072    -17.   -16.   -62. -0.874 -6.965
JOINT M073     17.   -16.   -62.  0.874 -6.965
JOINT M074     -4.   -16.   -62. -7.875 -0.482
JOINT M075      4.   -16.   -62.  7.875 -0.482
JOINT M076    -23.   -13.   -62. -3.375 -3.950
JOINT M077     23.   -13.   -62.  3.375 -3.950
JOINT M078    -22.   -11.   -62. -3.866 -8.007
JOINT M079    -20.   -11.   -62. -2.125 -8.008
JOINT M080    -17.   -11.   -62. -0.875 -8.008
JOINT M081    -14.   -11.   -62. -2.835 -8.008
JOINT M082    -13.   -11.   -62.-11.625 -8.008
JOINT M083    -10.   -11.   -62.-10.375 -8.008
JOINT M084     -7.   -11.   -62. -9.125 -8.008
JOINT M085     -7.   -11.   -62. -2.171 -8.008
JOINT M086     -4.   -11.   -62. -7.875 -8.008
JOINT M087     -1.   -11.   -62. -6.625 -8.008
JOINT M088      1.   -11.   -62.  6.625 -8.008
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JOINT M089      4.   -11.   -62.  7.875 -8.008
JOINT M090      7.   -11.   -62.  2.171 -8.008
JOINT M091      7.   -11.   -62.  9.125 -8.008
JOINT M092     10.   -11.   -62. 10.375 -8.008
JOINT M093     13.   -11.   -62. 11.625 -8.008
JOINT M094     14.   -11.   -62.  2.835 -8.008
JOINT M095     17.   -11.   -62.  0.875 -8.008
JOINT M096     20.   -11.   -62.  2.125 -8.008
JOINT M097     22.   -11.   -62.  3.866 -8.009
JOINT M098    -13.   -11.   -62.-11.625 -2.448
JOINT M099     13.   -11.   -62. 11.625 -2.448
JOINT M100     -7.   -10.   -62. -9.125 -8.474
JOINT M101      7.   -10.   -62.  9.125 -7.965
JOINT M102    -20.    -7.   -62. -2.125-11.405
JOINT M103     20.    -7.   -62.  2.125-11.405
JOINT M104    -11.    -7.   -62. -8.503 -3.473
JOINT M105     11.    -7.   -62.  8.503 -3.473
JOINT M106    -10.    -5.   -62.-10.376 -9.931
JOINT M107     10.    -5.   -62. 10.375 -9.932
JOINT M108    -18.    -5.   -62. -9.553 -6.689
JOINT M109    -17.    -5.   -62. -0.875 -6.689
JOINT M110    -13.    -5.   -62.-11.625 -6.689
JOINT M111    -10.    -5.   -62.-10.375 -6.689
JOINT M112    -10.    -5.   -62. -8.503 -6.689
JOINT M113     -7.    -5.   -62. -9.125 -6.689
JOINT M114     -4.    -5.   -62. -7.875 -6.689
JOINT M115     -1.    -5.   -62. -6.625 -6.689
JOINT M116      1.    -5.   -62.  6.625 -6.689
JOINT M117      4.    -5.   -62.  7.875 -6.689
JOINT M118      7.    -5.   -62.  9.125 -6.689
JOINT M119     10.    -5.   -62.  8.503 -6.689
JOINT M120     10.    -5.   -62. 10.375 -6.689
JOINT M121     13.    -5.   -62. 11.625 -6.689
JOINT M122     17.    -5.   -62.  0.875 -6.689
JOINT M123     18.    -5.   -62.  9.553 -6.689
JOINT M124     -9.    -3.   -62. -8.504 -9.904
JOINT M125      9.    -3.   -62.  8.503 -9.905
JOINT M126    -17.    -2.   -62. -0.875 -6.859
JOINT M127     17.    -2.   -62.  0.875 -6.859
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JOINT M128    -16.     0.   -62. -0.878-10.071

JOINT M129    -13.     0.   -62.-11.625-10.071

JOINT M130    -10.     0.   -62.-10.376-10.071

JOINT M131     -7.     0.   -62.-11.814-10.071

JOINT M138      7.     0.   -62. 11.814-10.071

JOINT M139     10.     0.   -62. 10.376-10.071

JOINT M140     13.     0.   -62. 11.625-10.071

JOINT M141     16.     0.   -62.  0.878-10.071

JOINT M142     -7.     0.   -62. -9.125 -5.414

JOINT M143      7.     0.   -62.  9.125 -5.414

JOINT M145    -13.     2.   -62.-11.625  9.687

JOINT M146     13.     2.   -62. 11.625  9.687

JOINT M149     -4.     4.   -62. -7.875 11.104

JOINT M150      4.     4.   -62.  7.875 11.104

JOINT M152      7.     5.   -62.  9.125  1.904

JOINT M153    -12.     5.   -62. -7.326  1.929

JOINT M154    -10.     5.   -62.-10.375  1.930

JOINT M155     -7.     5.   -62. -9.125  1.929

JOINT M156     -4.     5.   -62. -6.244  1.929

JOINT M158      4.     5.   -62.  6.244  1.929

JOINT M159     10.     5.   -62. 10.375  1.920

JOINT M160     12.     5.   -62.  7.326  1.929

JOINT M161     -4.     5.   -62. -2.250  8.847

JOINT M162      4.     5.   -62.  2.250  8.847

JOINT M164     -7.     7.   -62. -9.125  8.333

JOINT M165      7.     7.   -62.  9.125  8.333

JOINT M166    -10.     8.   -62.-10.375  2.232

JOINT M167     10.     8.   -62. 10.375  2.232

JOINT M168     -2.     8.   -62. -4.868  9.880

JOINT M171      2.     8.   -62.  4.868  9.880

JOINT M172    -10.     9.   -62. -4.014  1.254

JOINT M173     10.     9.   -62.  4.014  1.254

JOINT M176     -1.    10.   -62. -7.350  2.365

JOINT M177      1.    10.   -62.  7.350  2.365

JOINT M178     -4.    11.   -62. -7.876 11.453

JOINT M179      4.    11.   -62.  7.875 11.452

JOINT M182     -7.    13.   -62. -8.180  8.416

JOINT M183      7.    13.   -62.  8.180  8.416

JOINT M184     -1.    15.   -62. -6.625  8.090
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JOINT M185 1. 15. -62. 6.625 8.090

JOINT M186 -4. 18. -62. -7.875 11.323

JOINT M187 4. 18. -62. 7.875 11.323

JOINT M188 -4. 19. -62. -0.600 11.930

JOINT M189 -1. 19. -62. -6.625 11.929

JOINT M190 1. 19. -62. 6.625 11.929

JOINT M191 4. 19. -62. 0.600 11.930

JOINT P001 7. 0. -2. 11.844-10.116

JOINT P002 15. 3. -2. 9.374 7.884

JOINT P003 7. 17. -2. 9.530 5.880

JOINT P005 15. 3. 0. 9.374 7.884

JOINT P006 14. 6. 0. 3.477 2.882

JOINT P007 12. 8. 0. 9.578 9.881

JOINT P008 11. 11. 0. 1.562 8.548

JOINT P009 9. 14. 0. 5.547 7.213

JOINT P010 7. 17. 0. 9.530 5.880

JOINT P011 7. 0. 5. 11.844-10.116

JOINT P012 15. 3. 5. 9.374 7.884

JOINT P013 14. 6. 5. 3.477 2.882

JOINT P014 12. 8. 5. 9.578 9.881

JOINT P015 11. 11. 5. 1.562 8.548

JOINT P016 9. 14. 5. 5.547 7.213

JOINT P017 7. 17. 5. 9.530 5.880

JOINT P018 7. 0. 10. 11.844-10.116

JOINT P019 15. 3. 10. 9.374 7.884

JOINT P020 14. 6. 10. 3.477 2.882

JOINT P021 5. 4. 10. 0.050 3.883

JOINT P022 12. 8. 10. 9.578 9.881

JOINT P023 11. 11. 10. 1.562 8.548

JOINT P024 9. 14. 10. 5.547 7.213

JOINT P025 7. 17. 10. 9.530 5.880

JOINT P026 13. 2. 10. 2.197 1.884

JOINT P027 13. 2. 5. 2.197 1.884

JOINT P028 13. 2. 0. 2.197 1.884

JOINT P029 13. 2. -2. 2.197 1.884

JOINT P030 5. 15. 10. 2.353 11.880

JOINT P031 5. 15. 5. 2.353 11.880

JOINT P032 5. 15. 0. 2.353 11.880

JOINT P033 5. 15. -2. 2.353 11.880

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JOINT P101     -7.     0.    -2.-11.840-10.119
JOINT P102    -15.     3.    -2. -9.374  7.884
JOINT P103     -7.    17.    -2. -9.530  5.879
JOINT P105    -15.     3.     0. -9.374  7.884 -5.250
JOINT P106    -14.     6.     0. -3.477  2.882 -5.250
JOINT P107    -12.     8.     0. -9.578  9.881 -5.250
JOINT P108    -11.    11.     0. -1.562  8.548 -5.250
JOINT P109     -9.    14.     0. -5.547  7.213 -5.250
JOINT P110     -7.    17.     0. -9.530  5.879 -5.250
JOINT P111    -13.     2.     5. -2.197  1.884
JOINT P112    -15.     3.     5. -9.374  7.884
JOINT P113    -14.     6.     5. -3.477  2.882
JOINT P114    -12.     8.     5. -9.578  9.881
JOINT P115    -11.    11.     5. -1.562  8.548
JOINT P116     -9.    14.     5. -5.547  7.213
JOINT P117     -7.    17.     5. -9.530  5.879
JOINT P118     -7.     0.    10.-11.844-10.116
JOINT P119    -15.     3.    10. -9.374  7.884
JOINT P120    -14.     6.    10. -3.477  2.882
JOINT P121     -5.     4.    10. -0.048  3.882
JOINT P122    -12.     8.    10. -9.578  9.881
JOINT P123    -11.    11.    10. -1.562  8.548
JOINT P124     -9.    14.    10. -5.547  7.213
JOINT P125     -7.    17.    10. -9.530  5.879
JOINT P126     -5.    15.    10. -2.353 11.879
JOINT P127    -13.     2.    10. -2.197  1.884
JOINT P128     -5.    15.    -2. -2.353 11.879 -5.250
JOINT P129    -13.     2.    -2. -2.197  1.884
JOINT P130     -5.    15.     5. -2.353 11.879
JOINT P131    -13.     2.     0. -2.197  1.884 -5.250
JOINT P132     -5.    15.     0. -2.353 11.879 -5.250
JOINT R001     -8.     4.   -60. -4.248  0.948        001001
JOINT R002     -8.     4.   -27. -4.248  0.948
JOINT R003     -8.     4.   -27. -4.248  0.948
JOINT R004     -8.     4.    10. -4.248  0.948
JOINT R005     -8.     4.    10. -4.248  0.948
JOINT RJ01     60.   -40.   -62.                     111111
JOINT RJ02     60.   -40.   -27.
JOINT RJ03     50.   -40.    10.
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JOINT S001     12.    -8.    31.  2.812 -2.398
JOINT S002      9.    -4.    31. 10.405 -1.197
JOINT S003      7.     0.    31.  5.998  0.003
JOINT S004     11.   -15.    31.  4.374 -1.068
JOINT S005      8.   -10.    31.  7.186 -3.586
JOINT S006      6.    -6.    31.  2.779 -2.385
JOINT S007      3.    -2.    31. 10.372 -1.185
JOINT S008      4.    -7.    31.  5.994 -2.385
JOINT S009      9.    -4.    26. 10.405 -1.197  9.720
JOINT S011     12.    -8.    26.  2.812 -2.398  9.720
JOINT S041      7.     0.    26.  5.998  0.003  9.720
JOINT V000    -20.   -18.    58.       -11.880  7.284
JOINT V002    -21.   -18.    58. -7.688-11.880  7.661
JOINT V003    -21.   -21.    63. -7.688 -5.880
JOINT V004    -21.   -16.    63. -7.688 -5.880
JOINT V005    -23.   -18.    58. -3.375-11.880  8.038
JOINT V006    -23.   -21.    63. -3.375 -5.880
JOINT V007    -23.   -16.    63. -3.375 -5.880
JOINT V008    -27.   -18.    58.-10.438-11.880 10.115
JOINT V009    -27.   -21.    63.-10.438 -4.681
JOINT V010    -27.   -16.    63.-10.438 -7.079
JOINT V011    -32.   -18.    59. -5.563-11.880  0.194
JOINT V012    -32.   -21.    63. -5.563 -3.481
JOINT V013    -32.   -16.    63. -5.563 -8.279
JOINT V014    -37.   -18.    59. -0.688-11.880  2.273
JOINT V015    -37.   -21.    63. -0.688 -2.281
JOINT V016    -37.   -16.    63. -0.688 -9.479
JOINT V017    -41.   -18.    59. -7.813-11.880  4.352
JOINT V018    -41.   -21.    63. -7.813 -1.080
JOINT V019    -41.   -16.    63. -7.813-10.680
JOINT V020    -46.   -18.    59. -2.938-11.880  6.431
JOINT V021    -46.   -20.    63. -2.938-11.880
JOINT V022    -46.   -16.    63. -2.938-11.880
JOINT 5175     15.    -6.    63.1.596-4 -9.240
JOINT 5176     17.    -6.    63.  6.000 -9.240
JOINT 5177     20.    -6.    63.  6.000 -9.240
JOINT 5131     23.   -12.    63.  2.750-11.880
JOINT 5178     23.   -18.    63.  2.750-11.880
JOINT 5179     23.   -24.    63.  2.750-11.880
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*===AREA FOR WIND PROJECTION===*
AREA
AREAC1 650.0             -15.00   0.00  30.001.0003L013L03                   F
AREAC2       750.0         0.00 -12.99  30.001.0003L013L02                   F
AREAC3 650.0              15.00   0.00  30.001.0003L023L04                   F
AREAC4       750.0         0.00  12.99  30.001.0003L043L03                   F
AREAM1 650.0             -15.00   0.00  55.001.0005L015L03                   F
AREAM2       750.0         0.00 -12.99  55.001.0005L015L02                   F
AREAM3 650.0              15.00   0.00  55.001.0005L025L04                   F
AREAM4       750.0         0.00  12.99  55.001.0005L045L03                   F
CDM
*===AREA FOR WIND PROJECTION===*
*
CDM     1.00 0.700       2.000       0.700       2.000
CDM    70.00 0.700       2.000       0.700       2.000
MGROV
MGROV   0.000     63.900   2.000 -62.000          77.000
GRPOV
GRPOV          C01         41.580201.06016.00016.000
GRPOV          C02         21.300 58.430 8.625 8.625
GRPOV          C03         15.710 58.430 8.625 8.625
GRPOV          C04          9.720 58.430 8.625 8.625
GRPOV          C05         16.100 90.76010.75010.750
GRPOV          C06          9.620 34.470 6.625 6.625
GRPOV          C11         57.920201.06016.00016.000
GRPOV          C15         12.220 90.76010.75010.750
GRPOV          C16          6.920 30.680 6.250 6.250
GRPOV          DL0        162.5801017.8836.00036.000
GRPOV          DL0
GRPOV          L04        152.1701256.6440.00040.000
GRPOV          L05        152.1701256.6440.00040.000
GRPOV          L05        181.4301256.6440.00040.000
GRPOV          L06        181.4301256.6440.00040.000
GRPOVAL        PL1NF               0.001 0.001 0.001
GRPOVAL        PL2NF               0.001 0.001 0.001
GRPOVAL        PL3NF               0.001 0.001 0.001
GRPOV          PL4        162.5801017.8836.00036.000
GRPOV          TR1        136.4601017.8836.00036.000
GRPOV          V12         45.360314.16020.00020.000
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GRPOV          V13         35.930201.06016.00016.000

GRPOV          V22         59.690314.16020.00020.000

GRPOV          V23         47.120201.06016.00016.000

GRPOV          W.BNF 0.001  0.001  0.001 0.001 0.001

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MEMOV  M027M028   N                                1.101.101.101.10        F

MEMOV  M028M029   N                                1.101.101.101.10        F

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MEMOV  M034M035   N                                1.101.101.101.10        F

MEMOV  M035M036   N                                1.101.101.101.10        F

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MEMOV  M038102L   N                                1.101.101.101.10        F

MEMOV  M044M053   N                                1.101.101.101.10        F

MEMOV  M045M068   N                                1.101.101.101.10        F

MEMOV  M053M072   N                                1.101.101.101.10        F

MEMOV  M068M073   N                                1.101.101.101.10        F

MEMOV  M072M081   N                                1.101.101.101.10        F

MEMOV  M073M094   N                                1.101.101.101.10        F

MEMOV  M081M098   N                                1.101.101.101.10        F

MEMOV  M094M099   N                                1.101.101.101.10        F

MEMOV  M098M104   N                                1.101.101.101.10        F

MEMOV  M099M105   N                                1.101.101.101.10        F

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MEMOV  M125M138   N                                1.101.101.101.10        F

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MEMOV  M142M149   N                                1.101.101.101.10        F

MEMOV  M143M150   N                                1.101.101.101.10        F

MEMOV  M149M156   N                                1.101.101.101.10        F

MEMOV  M150M158   N                                1.101.101.101.10        F

MEMOV  M156M161   N                                1.101.101.101.10        F

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MEMOV  M171M177   N                              1.101.101.101.10        F
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MEMOV  M177103L   N                              1.101.101.101.10        F
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MEMOV  M031M047   N                              1.101.101.101.10        F
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MEMOV  M074M085   N                              1.101.101.101.10        F
MEMOV  M075M090   N                              1.101.101.101.10        F
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MEMOV  M113M114   N                              1.101.101.101.10        F
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MEMOV  M115M116   N                              1.101.101.101.10        F
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MEMOV  M118M119   N                              1.101.101.101.10        F
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MEMOV  M031M032   N                              1.101.101.101.10        F
MEMOV  M032M033   N                              1.101.101.101.10        F
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MEMOV  M105M107   N                              1.101.101.101.10        F
MEMOV  M106M112   N                              1.101.101.101.10        F
MEMOV  M107M119   N                              1.101.101.101.10        F
MEMOV  M112M124   N                              1.101.101.101.10        F
MEMOV  M119M125   N                              1.101.101.101.10        F
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MEMOV  214 216    N                              1.101.101.101.10        F
MEMOV  215 221    N                              1.101.101.101.10        F
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MEMOV  224 228    N                                1.101.101.101.10        F

MEMOV  227 229    N                                1.101.101.101.10        F

MEMOV  228 203L   N                                1.101.101.101.10        F

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MEMOV  201L204    N                                1.101.101.101.10        F

MEMOV  202L205    N                                1.101.101.101.10        F

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MEMOV  202 209    N                                1.101.101.101.10        F

MEMOV  206 207    N                                1.101.101.101.10        F

MEMOV  207 208    N                                1.101.101.101.10        F

MEMOV  208 209    N                                1.101.101.101.10        F

MEMOV  201 202    N                                1.101.101.101.10        F

MEMOV  202 203    N                                1.101.101.101.10        F

MEMOV  204 206    N                                1.101.101.101.10        F

MEMOV  205 209    N                                1.101.101.101.10        F

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MEMOV  209 213    N                                1.101.101.101.10        F

MEMOV  210 214    N                                1.101.101.101.10        F

MEMOV  213 215    N                                1.101.101.101.10        F

MEMOV  222 204G   N                                1.101.101.101.10        F

MEMOV  223 205G   N                                1.101.101.101.10        F

MEMOV  228 204G   N                                1.101.101.101.10        F

MEMOV  229 205G   N                                1.101.101.101.10        F

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MEMOV  002L102L   N                                1.101.101.101.10        F

MEMOV  003L103L   N                                1.101.101.101.10        F

MEMOV  101L101    N                                1.101.101.101.10        F

MEMOV  102L102    N                                1.101.101.101.10        F

MEMOV  103L103    N                                1.101.101.101.10        F

MEMOV  101 201L   N                                1.101.101.101.10        F

MEMOV  102 202L   N                                1.101.101.101.10        F

MEMOV  103 203L   N                                1.101.101.101.10        F

MEMOV  201L20C1   N                                1.101.101.101.10        F

MEMOV  202L20C2   N                                1.101.101.101.10        F

MEMOV  203L20C3   N                                1.101.101.101.10        F
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MEMOV  M001M015   N                                1.051.051.051.05        F

MEMOV  M002M003   N                                1.051.051.051.05        F

MEMOV  M003M004   N                                1.051.051.051.05        F

MEMOV  M004M005   N                                1.051.051.051.05        F

MEMOV  M005M006   N                                1.051.051.051.05        F

MEMOV  M006M007   N                                1.051.051.051.05        F

MEMOV  M007M008   N                                1.051.051.051.05        F

MEMOV  M008M009   N                                1.051.051.051.05        F

MEMOV  M009M010   N                                1.051.051.051.05        F

MEMOV  M010M011   N                                1.051.051.051.05        F

MEMOV  M011M012   N                                1.051.051.051.05        F

MEMOV  M012M013   N                                1.051.051.051.05        F

MEMOV  M013M014   N                                1.051.051.051.05        F

MEMOV  M014102L   N                                1.051.051.051.05        F

MEMOV  M014M016   N                                1.051.051.051.05        F

MEMOV  M015M017   N                                1.051.051.051.05        F

MEMOV  M016M018   N                                1.051.051.051.05        F

MEMOV  M017M019   N                                1.051.051.051.05        F

MEMOV  M018M043   N                                1.051.051.051.05        F

MEMOV  M019M020   N                                1.051.051.051.05        F

MEMOV  M019M048   N                                1.051.051.051.05        F

MEMOV  M020M021   N                                1.051.051.051.05        F

MEMOV  M021101L   N                                1.051.051.051.05        F

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MEMOV  M042M043   N                                1.051.051.051.05        F

MEMOV  M043M049   N                                1.051.051.051.05        F

MEMOV  M048M050   N                                1.051.051.051.05        F

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MEMOV  M050M076   N                                1.051.051.051.05        F

MEMOV  M071M077   N                                1.051.051.051.05        F

MEMOV  M076M078   N                                1.051.051.051.05        F

MEMOV  M077M097   N                                1.051.051.051.05        F

MEMOV  M078M102   N                                1.051.051.051.05        F

MEMOV  M097M103   N                                1.051.051.051.05        F
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MEMOV	M127M141	N	1.051.051.051.05	F
MEMOV	M128M145	N	1.051.051.051.05	F
MEMOV	M141M146	N	1.051.051.051.05	F
MEMOV	M145M153	N	1.051.051.051.05	F
MEMOV	M146M160	N	1.051.051.051.05	F
MEMOV	M153M166	N	1.051.051.051.05	F
MEMOV	M160M167	N	1.051.051.051.05	F
MEMOV	M166M172	N	1.051.051.051.05	F
MEMOV	M167M173	N	1.051.051.051.05	F
MEMOV	M172M182	N	1.051.051.051.05	F
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MEMOV	M183M187	N	1.051.051.051.05	F
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MEMOV	M185M191	N	1.051.051.051.05	F
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MEMOV	M062M063	N	1.051.051.051.05	F
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MEMOV	M068M069	N	1.051.051.051.05	F
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MEMOV	M079M080	N	1.051.051.051.05	F
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MEMOV	M082M083	N	1.051.051.051.05	F
MEMOV	M083M084	N	1.051.051.051.05	F
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MEMOV	M085M086	N	1.051.051.051.05	F
MEMOV	M086M087	N	1.051.051.051.05	F
MEMOV	M087M088	N	1.051.051.051.05	F
MEMOV	M088M089	N	1.051.051.051.05	F
MEMOV	M089M090	N	1.051.051.051.05	F
MEMOV	M090M091	N	1.051.051.051.05	F
MEMOV	M091M092	N	1.051.051.051.05	F
MEMOV	M092M093	N	1.051.051.051.05	F
MEMOV	M093M094	N	1.051.051.051.05	F
MEMOV	M094M095	N	1.051.051.051.05	F
MEMOV	M095M096	N	1.051.051.051.05	F
MEMOV	M096M097	N	1.051.051.051.05	F
MEMOV	M108M109	N	1.051.051.051.05	F
MEMOV	M109M110	N	1.051.051.051.05	F
MEMOV	M110M111	N	1.051.051.051.05	F
MEMOV	M111M112	N	1.051.051.051.05	F
MEMOV	M119M120	N	1.051.051.051.05	F
MEMOV	M120M121	N	1.051.051.051.05	F
MEMOV	M121M122	N	1.051.051.051.05	F
MEMOV	M122M123	N	1.051.051.051.05	F
MEMOV	M128M129	N	1.051.051.051.05	F
MEMOV	M129M130	N	1.051.051.051.05	F
MEMOV	M130M131	N	1.051.051.051.05	F
MEMOV	M138M139	N	1.051.051.051.05	F
MEMOV	M139M140	N	1.051.051.051.05	F

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MEMOV  M153M154   N                                1.051.051.051.05        F

MEMOV  M154M155   N                                1.051.051.051.05        F

MEMOV  M155M156   N                                1.051.051.051.05        F

MEMOV  M158M152   N                                1.051.051.051.05        F

MEMOV  M159M160   N                                1.051.051.051.05        F

MEMOV  M161M164   N                                1.051.051.051.05        F

MEMOV  M162M165   N                                1.051.051.051.05        F

MEMOV  M164M172   N                                1.051.051.051.05        F

MEMOV  M165M173   N                                1.051.051.051.05        F

MEMOV  M176M178   N                                1.051.051.051.05        F

MEMOV  M177M179   N                                1.051.051.051.05        F

MEMOV  M178M182   N                                1.051.051.051.05        F

MEMOV  M179M183   N                                1.051.051.051.05        F

MEMOV  M002M024   N                                1.051.051.051.05        F

MEMOV  M003M025   N                                1.051.051.051.05        F

MEMOV  M004M026   N                                1.051.051.051.05        F

MEMOV  M005M027   N                                1.051.051.051.05        F

MEMOV  M006M028   N                                1.051.051.051.05        F

MEMOV  M007M030   N                                1.051.051.051.05        F

MEMOV  M008M032   N                                1.051.051.051.05        F

MEMOV  M009M034   N                                1.051.051.051.05        F

MEMOV  M010M035   N                                1.051.051.051.05        F

MEMOV  M011M036   N                                1.051.051.051.05        F

MEMOV  M012M037   N                                1.051.051.051.05        F

MEMOV  M013M038   N                                1.051.051.051.05        F

MEMOV  M015M021   N                                1.051.051.051.05        F

MEMOV  M016M041   N                                1.051.051.051.05        F

MEMOV  M017M020   N                                1.051.051.051.05        F

MEMOV  M018M042   N                                1.051.051.051.05        F

MEMOV  M020M048   N                                1.051.051.051.05        F

MEMOV  M021M051   N                                1.051.051.051.05        F

MEMOV  M024M054   N                                1.051.051.051.05        F

MEMOV  M025M055   N                                1.051.051.051.05        F

MEMOV  M026M056   N                                1.051.051.051.05        F

MEMOV  M027M057   N                                1.051.051.051.05        F

MEMOV  M028M058   N                                1.051.051.051.05        F

MEMOV  M034M063   N                                1.051.051.051.05        F
```

MEMOV	M035M064	N	1.051.051.051.05	F
MEMOV	M036M065	N	1.051.051.051.05	F
MEMOV	M037M066	N	1.051.051.051.05	F
MEMOV	M038M067	N	1.051.051.051.05	F
MEMOV	M041M070	N	1.051.051.051.05	F
MEMOV	M042M049	N	1.051.051.051.05	F
MEMOV	M044M052	N	1.051.051.051.05	F
MEMOV	M045M069	N	1.051.051.051.05	F
MEMOV	M046M060	N	1.051.051.051.05	F
MEMOV	M047M061	N	1.051.051.051.05	F
MEMOV	M051M076	N	1.051.051.051.05	F
MEMOV	M052M079	N	1.051.051.051.05	F
MEMOV	M055M082	N	1.051.051.051.05	F
MEMOV	M056M083	N	1.051.051.051.05	F
MEMOV	M057M084	N	1.051.051.051.05	F
MEMOV	M058M074	N	1.051.051.051.05	F
MEMOV	M060M087	N	1.051.051.051.05	F
MEMOV	M061M088	N	1.051.051.051.05	F
MEMOV	M063M075	N	1.051.051.051.05	F
MEMOV	M064M091	N	1.051.051.051.05	F
MEMOV	M065M092	N	1.051.051.051.05	F
MEMOV	M066M093	N	1.051.051.051.05	F
MEMOV	M069M096	N	1.051.051.051.05	F
MEMOV	M070M077	N	1.051.051.051.05	F
MEMOV	M072M080	N	1.051.051.051.05	F
MEMOV	M073M095	N	1.051.051.051.05	F
MEMOV	M074M086	N	1.051.051.051.05	F
MEMOV	M075M089	N	1.051.051.051.05	F
MEMOV	M079M102	N	1.051.051.051.05	F
MEMOV	M080M109	N	1.051.051.051.05	F
MEMOV	M082M098	N	1.051.051.051.05	F
MEMOV	M083M106	N	1.051.051.051.05	F
MEMOV	M084M100	N	1.051.051.051.05	F
MEMOV	M086M114	N	1.051.051.051.05	F
MEMOV	M087M115	N	1.051.051.051.05	F
MEMOV	M088M116	N	1.051.051.051.05	F
MEMOV	M089M117	N	1.051.051.051.05	F
MEMOV	M091M101	N	1.051.051.051.05	F
MEMOV	M092M107	N	1.051.051.051.05	F

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MEMOV  M093M099   N                              1.051.051.051.05        F
MEMOV  M095M122   N                              1.051.051.051.05        F
MEMOV  M096M103   N                              1.051.051.051.05        F
MEMOV  M098M110   N                              1.051.051.051.05        F
MEMOV  M099M121   N                              1.051.051.051.05        F
MEMOV  M100M113   N                              1.051.051.051.05        F
MEMOV  M101M118   N                              1.051.051.051.05        F
MEMOV  M106M111   N                              1.051.051.051.05        F
MEMOV  M107M120   N                              1.051.051.051.05        F
MEMOV  M109M126   N                              1.051.051.051.05        F
MEMOV  M110M129   N                              1.051.051.051.05        F
MEMOV  M111M130   N                              1.051.051.051.05        F
MEMOV  M120M139   N                              1.051.051.051.05        F
MEMOV  M121M140   N                              1.051.051.051.05        F
MEMOV  M122M127   N                              1.051.051.051.05        F
MEMOV  M129M145   N                              1.051.051.051.05        F
MEMOV  M130M154   N                              1.051.051.051.05        F
MEMOV  M139M159   N                              1.051.051.051.05        F
MEMOV  M140M146   N                              1.051.051.051.05        F
MEMOV  M142M155   N                              1.051.051.051.05        F
MEMOV  M143M152   N                              1.051.051.051.05        F
MEMOV  M152M165   N                              1.051.051.051.05        F
MEMOV  M154M166   N                              1.051.051.051.05        F
MEMOV  M155M164   N                              1.051.051.051.05        F
MEMOV  M159M167   N                              1.051.051.051.05        F
MEMOV  M178M186   N                              1.051.051.051.05        F
MEMOV  M179M187   N                              1.051.051.051.05        F
MEMOV  M184M189   N                              1.051.051.051.05        F
MEMOV  M185M190   N                              1.051.051.051.05        F
MEMOV  216 R003   N                              1.101.101.101.10        F
MEMOV  201LM031   N                              1.101.101.101.10        F
MEMOV  202LM119   N                              1.101.101.101.10        F
MEMOV  203LM112   N                              1.101.101.101.10        F
MEMOV  M031202L   N                              1.101.101.101.10        F
MEMOV  M112201L   N                              1.101.101.101.10        F
MEMOV  M119203L   N                              1.101.101.101.10        F
MEMOV  201L20C8   N                              1.101.101.101.10        F
MEMOV  202L20C4   N                              1.101.101.101.10        F
MEMOV  203L20C6   N                              1.101.101.101.10        F
```

```
MEMOV  210 20C7   N                                1.101.101.101.10        F

MEMOV  213 20C5   N                                1.101.101.101.10        F

MEMOV  101L101P   N                                1.101.101.101.10        F

MEMOV  102L102P   N                                1.101.101.101.10        F

MEMOV  103L103P   N                                1.101.101.101.10        F

MEMOV  201L201P   N                                1.101.101.101.10        F

MEMOV  202L202P   N                                1.101.101.101.10        F

MEMOV  203L203P   N                                1.101.101.101.10        F

MEMOV  R002R003   N                                1.101.101.101.10        F

MEMOV  204C204G   N                                1.101.101.101.10        F

MEMOV  205C205G   N                                1.101.101.101.10        F

LOAD

LOADCN  21

LOADLB21  TOPSIDE NON GENERATED DEAD LOAD

LOAD Z 50235039        -0.01711.50000-0.0171              GLOB UNIF   GRTVT

LOAD Z 50155023 1.00000-0.0171       -0.0171              GLOB UNIF   GRTVT

LOAD Z V006V007 1.00000-0.04113.00000-0.0411              GLOB UNIF   GRTVT

LOAD Z V021V022 0.50000-0.02403.00000-0.0240              GLOB UNIF   GRTVT

LOAD Z V009V010 0.90008-0.04793.00000-0.0479              GLOB UNIF   GRTVT

LOAD Z V012V013 0.80008-0.04803.00000-0.0480              GLOB UNIF   GRTVT

LOAD Z V015V016 0.70008-0.04803.00000-0.0480              GLOB UNIF   GRTVT

LOAD Z V018V019 0.60000-0.04803.00000-0.0480              GLOB UNIF   GRTVT

LOAD   V022                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V019                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V016                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V013                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V010                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V007                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V006                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V009                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V012                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V015                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V018                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V021                  -0.0660                      GLOB JOIN   HDRVT

LOAD   V019                  -0.5514                      GLOB JOIN   PDYVT

LOAD   V018                  -0.5514                      GLOB JOIN   PDYVT

LOAD   V007                  -0.5514                      GLOB JOIN   PDYVT

LOAD   V006                  -0.5514                      GLOB JOIN   PDYVT

LOAD Z 20012005        -0.0157       -0.0157              GLOB UNIF   GRTCLSD
```

```
LOAD Z 20022006       -0.0313       -0.0313             GLOB UNIF   GRTCLSD
LOAD Z 20032007       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20062012       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20072019       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20122017       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20052011       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20062012       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20112016       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20122017       -0.0157       -0.0157             GLOB UNIF   GRTCLSD
LOAD Z 20082013       -0.0147       -0.0147             GLOB UNIF   GRTCLSD
LOAD Z 20102015       -0.0271       -0.0271             GLOB UNIF   GRTCLSD
LOAD Z 20112016       -0.0131       -0.0131             GLOB UNIF   GRTCLSD
LOAD Z 20092014       -0.0287       -0.0287             GLOB UNIF   GRTCLSD
LOAD Z 20132020       -0.0147       -0.0147             GLOB UNIF   GRTCLSD
LOAD Z 20152022       -0.0271       -0.0271             GLOB UNIF   GRTCLSD
LOAD Z 20192025       -0.0109       -0.0109             GLOB UNIF   GRTCLSD
LOAD Z 20202027       -0.0147       -0.0147             GLOB UNIF   GRTCLSD
LOAD Z 20222029       -0.0271       -0.0271             GLOB UNIF   GRTCLSD
LOAD Z 20242032       -0.0313       -0.0313             GLOB UNIF   GRTCLSD
LOAD Z 20252026       -0.0109       -0.0109             GLOB UNIF   GRTCLSD
LOAD Z 20262033       -0.0109       -0.0109             GLOB UNIF   GRTCLSD
LOAD Z 20162023       -0.0335       -0.0335             GLOB UNIF   GRTCLSD
LOAD Z 20232030       -0.0335       -0.0335             GLOB UNIF   GRTCLSD
LOAD Z 20182024       -0.0313       -0.0313             GLOB UNIF   GRTCLSD
LOAD Z 20142021       -0.0287       -0.0287             GLOB UNIF   GRTCLSD
LOAD Z 20212028       -0.0287       -0.0287             GLOB UNIF   GRTCLSD
LOAD Z 20272034       -0.0287       -0.0287             GLOB UNIF   GRTCLSD
LOAD Z 20292035       -0.0622       -0.0622             GLOB UNIF   GRTCLSD
LOAD Z 20322037       -0.0444       -0.0444             GLOB UNIF   GRTCLSD
LOAD Z 20332038       -0.0109       -0.0109             GLOB UNIF   GRTCLSD
LOAD Z 20342039       -0.0287       -0.0287             GLOB UNIF   GRTCLSD
LOAD Z 20352040       -0.0622       -0.0622             GLOB UNIF   GRTCLSD
LOAD Z 20372042       -0.0335       -0.0335             GLOB UNIF   GRTCLSD
LOAD Z 20032007       -0.0151       -0.0151             GLOB UNIF   HDRCLSD
LOAD Z 20072019       -0.0151       -0.0151             GLOB UNIF   HDRCLSD
LOAD Z 20192025       -0.0151       -0.0151             GLOB UNIF   HDRCLSD
LOAD Z 20252026       -0.0151       -0.0151             GLOB UNIF   HDRCLSD
LOAD Z 20262033       -0.0151       -0.0151             GLOB UNIF   HDRCLSD
LOAD Z 20332038       -0.0151       -0.0151             GLOB UNIF   HDRCLSD
```

```
LOAD Z 20372038        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20372042        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20412042        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20402041        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20392040        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20342039        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20272034        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20202027        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20132020        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20082013        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20082009        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20092010        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20102011        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20052011        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20012005        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20012002        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 20022003        -0.0151       -0.0151              GLOB UNIF   HDRCLSD
LOAD Z 40064015        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40154031        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40314032        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40324044        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40664076        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40754076        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40744075        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40744088        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40874088        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40864087        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40854086        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40844085        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40704071        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40694070        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40614069        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40374061        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40244037        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40244025        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40014007        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40074008        -0.0168       -0.0168              GLOB UNIF   GRTMZN
LOAD Z 40124017        -0.0313       -0.0313              GLOB UNIF   GRTMZN
LOAD Z 40154031        -0.0313       -0.0313              GLOB UNIF   GRTMZN
```

```
LOAD Z 40234029        -0.0313       -0.0313              GLOB UNIF   GRTMZN
LOAD Z 40084016        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40224028        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40244037        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40254038        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40374061        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40384045        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40454055        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40554062        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40614069        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40624070        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40274028        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40294030        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40304031        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40314043        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40324044        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40434048        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40584065        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40654075        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40664076        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40644065        -0.0135       -0.0135              GLOB UNIF   GRTMZN
LOAD Z 40734074        -0.0135       -0.0135              GLOB UNIF   GRTMZN
LOAD Z 40744075        -0.0135       -0.0135              GLOB UNIF   GRTMZN
LOAD Z 40734079        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40744088        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40794087        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40724077        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40624063        -0.0135       -0.0135              GLOB UNIF   GRTMZN
LOAD Z 40704071        -0.0135       -0.0135              GLOB UNIF   GRTMZN
LOAD Z 40714072        -0.0135       -0.0135              GLOB UNIF   GRTMZN
LOAD Z 40794087        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 51605161        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51615162        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51625163        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51635164        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51645165        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51655166        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51665167        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51675168        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
```

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LOAD Z 51685169        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51695170        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51705171        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51715172        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51725173        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51735174        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50555063        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50385055        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50145038        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50125013        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50115012        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50105011        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50095010        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50085009        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50075008        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50065007        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50055006        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50045005        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50035004        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50025003        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50025015        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50395042        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50425058        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50575058        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50565057        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50565068        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50685090        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50905112        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51125122        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51225123        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51235124        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51245133        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51335147        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51475160        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD   5L03                  -2.7567                     GLOB JOIN   PDYTPSD
LOAD   5L04                  -2.7567                     GLOB JOIN   PDYTPSD
LOAD   5L02                  -2.7567                     GLOB JOIN   PDYTPSD
LOAD   5L01                  -2.7567                     GLOB JOIN   PDYTPSD
LOAD Z 501L2004 1.00000-1.7643                           GLOB CONC   STBGD
```

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LOAD Z 30033004        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30043005        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30053006        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30063007        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30073008        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30083009        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30093010        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30103011        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30113012        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30123013        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30133014        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30143015        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30153030        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30303045        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30453061        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30613081        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30813107        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31073134        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31343155        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31553177        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31773198        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31973198        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31963197        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31953196        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31943195        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31933194        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31923193        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31913192        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31903191        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31893190        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31883189        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31873188        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31863187        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31633184        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31613163        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31423161        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31183142        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 31123118        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30913112        -0.0151       -0.0151              GLOB UNIF   HDRCD
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LOAD Z 30663091        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30623066        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30463062        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30313046        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30163031        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30013016        -0.0151       -0.0151              GLOB UNIF   HDRCD

LOAD Z 30033018        -0.0418       -0.0418              GLOB UNIF   GRTCD

LOAD Z 30133028        -0.0248       -0.0248              GLOB UNIF   GRTCD

LOAD Z 30013016        -0.0261       -0.0261              GLOB UNIF   GRTCD

LOAD Z 30043019        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30053020        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30063021        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30073022        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30083023        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30093024        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30103025        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30113026        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30143029        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 30153030        -0.0196       -0.0196              GLOB UNIF   GRTCD

LOAD Z 30123027        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30183033        -0.0418       -0.0418              GLOB UNIF   GRTCD

LOAD Z 30283043        -0.0444       -0.0444              GLOB UNIF   GRTCD

LOAD Z 30163031        -0.0261       -0.0261              GLOB UNIF   GRTCD

LOAD Z 30193034        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30203035        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30213036        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30223037        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30233038        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30243039        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30253040        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30263041        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30273042        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30303045        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 30433L02        -0.0444       -0.0444              GLOB UNIF   GRTCD

LOAD Z 30413057        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 30423058        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30453061        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 30333L01        -0.0418       -0.0418              GLOB UNIF   GRTCD

LOAD Z 30313046        -0.0261       -0.0261              GLOB UNIF   GRTCD
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LOAD Z 30343049        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30353050        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30363051        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30373052        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30383053        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 3L023079        -0.0300       -0.0300              GLOB UNIF   GRTCD
LOAD Z 30563065        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30573077        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30583078        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30603080        -0.0287       -0.0287              GLOB UNIF   GRTCD
LOAD Z 30613081        -0.0144       -0.0144              GLOB UNIF   GRTCD
LOAD Z 30653076        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30553064        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30563065        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30753082        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30763083        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30823100        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30643075        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30653076        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30863089        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30893101        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30833086        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 3L013068        -0.0418       -0.0418              GLOB UNIF   GRTCD
LOAD Z 30463062        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 30493069        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30503063        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30513071        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30523072        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30533073        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30553064        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30623066        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 30633070        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30643075        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 30683093        -0.0418       -0.0418              GLOB UNIF   GRTCD
LOAD Z 30663091        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 30693094        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30703088        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30713084        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30723098        -0.0313       -0.0313              GLOB UNIF   GRTCD
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LOAD Z 30733099        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30753082        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 30883095        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30843097        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30823100        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 30793105        -0.0300       -0.0300              GLOB UNIF   GRTCD

LOAD Z 30783104        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30803106        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 30813107        -0.0144       -0.0144              GLOB UNIF   GRTCD

LOAD Z 30903103        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 30873090        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 30773085        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 30853087        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31053132        -0.0300       -0.0300              GLOB UNIF   GRTCD

LOAD Z 31323153        -0.0300       -0.0300              GLOB UNIF   GRTCD

LOAD Z 31533L04        -0.0300       -0.0300              GLOB UNIF   GRTCD

LOAD Z 3L043196        -0.0300       -0.0300              GLOB UNIF   GRTCD

LOAD Z 3103505C        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31043131        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31063133        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 31073134        -0.0144       -0.0144              GLOB UNIF   GRTCD

LOAD Z 505C3151        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31313152        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31333154        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 31343155        -0.0144       -0.0144              GLOB UNIF   GRTCD

LOAD Z 31513173        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31523174        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31543176        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 31553177        -0.0144       -0.0144              GLOB UNIF   GRTCD

LOAD Z 31733194        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31743181        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31763197        -0.0287       -0.0287              GLOB UNIF   GRTCD

LOAD Z 31773198        -0.0144       -0.0144              GLOB UNIF   GRTCD

LOAD Z 31813195        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31003111        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31013115        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 3103505C        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31113117        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31153129        -0.0313       -0.0313              GLOB UNIF   GRTCD
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LOAD Z 31173127        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31273138        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31293150        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 505C3151        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31383141        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31413149        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31493160        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31513173        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31603171        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31713180        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31723193        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31733194        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31803192        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31503172        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 3L033186        -0.0418       -0.0418              GLOB UNIF   GRTCD

LOAD Z 31633184        -0.0261       -0.0261              GLOB UNIF   GRTCD

LOAD Z 31663178        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31673182        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31683183        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31693179        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31703191        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31713180        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31783187        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31793190        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31803192        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31823188        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31833189        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 30983109        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 3099503C        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31003111        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31093116        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31113117        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31253136        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 3126502C        -0.0313       -0.0313              GLOB UNIF   GRTCD

LOAD Z 31273138        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31363140        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31383141        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31403148        -0.0157       -0.0157              GLOB UNIF   GRTCD

LOAD Z 31413149        -0.0157       -0.0157              GLOB UNIF   GRTCD
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LOAD Z 31483156        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31493160        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31563169        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31583170        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31603171        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31163125        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31173127        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 502C3158        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 503C3126        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30933120        -0.0418       -0.0418              GLOB UNIF   GRTCD
LOAD Z 31203144        -0.0418       -0.0418              GLOB UNIF   GRTCD
LOAD Z 31443L03        -0.0418       -0.0418              GLOB UNIF   GRTCD
LOAD Z 31083114        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30913112        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 30943121        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30953113        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30973108        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 30983109        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31093116        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31143123        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31183142        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 31213145        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 504C3146        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31233147        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31253136        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31363140        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31403148        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31423161        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 31453166        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31463162        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31483156        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31563169        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31123118        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 31613163        -0.0261       -0.0261              GLOB UNIF   GRTCD
LOAD Z 3113504C        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31623167        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 31163125        -0.0157       -0.0157              GLOB UNIF   GRTCD
LOAD Z 31473168        -0.0313       -0.0313              GLOB UNIF   GRTCD
LOAD Z 503L513L 1.00000-1.7643                            GLOB CONC   STBGD
```

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LOAD Z 51465174        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51445146        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51325144        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51265132        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51185128        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50965118        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50745096        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 50635074        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 30013002        -0.0151       -0.0151              GLOB UNIF   HDRCD
LOAD Z 30023003        -0.0151       -0.0151              GLOB UNIF   HDRCD
LOAD Z 31843185        -0.0151       -0.0151              GLOB UNIF   HDRCD
LOAD Z 31853186        -0.0151       -0.0151              GLOB UNIF   HDRCD
LOAD Z 51265127        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 51275128        -0.0151       -0.0151              GLOB UNIF   HDRMAIN
LOAD Z 40824085        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40824085        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40784083        -0.0313       -0.0313              GLOB UNIF   GRTMZN
LOAD Z 40834086        -0.0313       -0.0313              GLOB UNIF   GRTMZN
LOAD Z 40714080        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40714080        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40804084        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40804084        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40774081        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40774081        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40814082        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40814082        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40444052        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40444052        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40524066        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40524066        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40484051        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40514058        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40074018        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40074018        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40184027        -0.0151       -0.0151              GLOB UNIF   HDRMZN
LOAD Z 40184027        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40164019        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40194022        -0.0157       -0.0157              GLOB UNIF   GRTMZN
LOAD Z 40014002        -0.0151       -0.0151              GLOB UNIF   HDRMZN
```

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LOAD Z 40014002        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40024003        -0.0151       -0.0151              GLOB UNIF   HDRMZN

LOAD Z 40024003        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40084009        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40094010        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40034004        -0.0151       -0.0151              GLOB UNIF   HDRMZN

LOAD Z 40034004        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40104011        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40114012        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40044005        -0.0151       -0.0151              GLOB UNIF   HDRMZN

LOAD Z 40044005        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40054006        -0.0151       -0.0151              GLOB UNIF   HDRMZN

LOAD Z 40054006        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40124013        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40254026        -0.0151       -0.0151              GLOB UNIF   HDRMZN

LOAD Z 40254026        -0.0157       -0.0157              GLOB UNIF   GRTMZN

LOAD Z 40264027        -0.0151       -0.0151              GLOB UNIF   HDRMZN

LOAD Z 40264027        -0.0157       -0.0157              GLOB UNIF   GRTMZN

LOAD Z 40384039        -0.0157       -0.0157              GLOB UNIF   GRTMZN

LOAD Z 40394040        -0.0157       -0.0157              GLOB UNIF   GRTMZN

LOAD Z 40134014        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40144015        -0.0168       -0.0168              GLOB UNIF   GRTMZN

LOAD Z 40414042        -0.0157       -0.0157              GLOB UNIF   GRTMZN

LOAD Z 40424043        -0.0157       -0.0157              GLOB UNIF   GRTMZN

LOAD Z 40174020        -0.0313       -0.0313              GLOB UNIF   GRTMZN

LOAD Z 40204023        -0.0313       -0.0313              GLOB UNIF   GRTMZN

LOAD   5043                  -0.4700                     GLOB JOIN   LDRCRN

LOAD   5145                  -0.1500                     GLOB JOIN   LDRMN

LOAD   5146                  -0.1500                     GLOB JOIN   LDRMN

LOAD   3176                  -0.1500                     GLOB JOIN   LDRMN

LOAD   3177                  -0.1500                     GLOB JOIN   LDRMN

LOAD   5173                  -0.6500                     GLOB JOIN   INTRMN

LOAD   5174                  -0.6500                     GLOB JOIN   INTRMN

LOAD   5146                  -0.6500                     GLOB JOIN   INTRMN

LOAD   5145                  -0.6500                     GLOB JOIN   INTRMN

LOAD   3131                  -0.2000                     GLOB JOIN   LDRCLR

LOAD   3132                  -0.2000                     GLOB JOIN   LDRCLR

LOAD   353                   -0.2000                     GLOB JOIN   LDRCLR

LOAD   355                   -0.2000                     GLOB JOIN   LDRCLR
```

```
LOAD   3131                -0.8000                  GLOB JOIN   INTCLR
LOAD   3133                -0.8000                  GLOB JOIN   INTCLR
LOAD   3104                -0.8000                  GLOB JOIN   INTCLR
LOAD   3106                -0.8000                  GLOB JOIN   INTCLR
LOAD   3182                -0.1000                  GLOB JOIN   LDRMZN
LOAD   3183                -0.1000                  GLOB JOIN   LDRMZN
LOAD   3077                -0.1000                  GLOB JOIN   LDRMZN
LOAD   3085                -0.1000                  GLOB JOIN   LDRMZN
LOAD   4011                -0.2000                  GLOB JOIN   LDRMZNSR
LOAD   4012                -0.2000                  GLOB JOIN   LDRMZNSR
LOAD   5004                -0.4000                  GLOB JOIN   STR
LOAD   5018                -0.4000                  GLOB JOIN   STR
LOAD   5006                -0.5500                  GLOB JOIN   STR
LOAD   5030                -0.5500                  GLOB JOIN   STR
LOAD   5032                -0.5500                  GLOB JOIN   STR
LOAD   5008                -0.5500                  GLOB JOIN   STR
LOAD   3014                -0.5500                  GLOB JOIN   STR
LOAD   3029                -0.5500                  GLOB JOIN   STR
LOAD   3041                -0.5500                  GLOB JOIN   STR
LOAD   3057                -0.5500                  GLOB JOIN   STR
LOAD   2003                -0.5500                  GLOB JOIN   STR
LOAD   2007                -0.5500                  GLOB JOIN   STR
LOAD   2019                -0.5500                  GLOB JOIN   STR
LOAD   2025                -0.5500                  GLOB JOIN   STR
LOAD   3011                -0.5500                  GLOB JOIN   STR
LOAD   3026                -0.5500                  GLOB JOIN   STR
LOAD   3041                -0.5500                  GLOB JOIN   STR
LOAD   3057                -0.5500                  GLOB JOIN   STR
LOAD   3L02                -0.5500                  GLOB JOIN   STR
LOAD   3043                -0.5500                  GLOB JOIN   STR
LOAD   3028                -0.5500                  GLOB JOIN   STR
LOAD   3013                -0.5500                  GLOB JOIN   STR
LOAD   325                 -0.5500                  GLOB JOIN   STR
LOAD   318                 -0.5500                  GLOB JOIN   STR
LOAD Z 50115035        -0.0442       -0.0442         GLOB UNIF   PLT1CM
LOAD Z 50355L02        -0.0442       -0.0442         GLOB UNIF   PLT1CM
LOAD Z 50055022        -0.0241       -0.0241         GLOB UNIF   PLT1CM
LOAD Z 50065030        -0.0483       -0.0483         GLOB UNIF   PLT1CM
LOAD Z 50075031        -0.0483       -0.0483         GLOB UNIF   PLT1CM
```

```
LOAD Z 50085032        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50095033        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50105034        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50125036        -0.0442       -0.0442              GLOB UNIF   PLT1CM
LOAD Z 50135037        -0.0653       -0.0653              GLOB UNIF   PLT1CM
LOAD Z 50145038        -0.0412       -0.0412              GLOB UNIF   PLT1CM
LOAD Z 50225029        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50295047        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50305048        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50315049        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50325050        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50335051        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50345052        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50365053        -0.0442       -0.0442              GLOB UNIF   PLT1CM
LOAD Z 50375054        -0.0653       -0.0653              GLOB UNIF   PLT1CM
LOAD Z 50385055        -0.0412       -0.0412              GLOB UNIF   PLT1CM
LOAD Z 50185025        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50255041        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50415L01        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50195026        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50205027        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50215028        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50225029        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50265044        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50275045        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50285046        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50295047        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50045017        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50175018        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50185025        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50255041        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50415L01        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50025015        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50035016        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 50155023        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50165024        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 50235039        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 50245040        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 50395042        -0.0201       -0.0201              GLOB UNIF   PLT1CM
```

```
LOAD Z 50405043        -0.0402       -0.0402              GLOB UNIF   PLT1CM

LOAD Z 50625073        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50635074        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 50725089        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50735095        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50745096        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 50895094        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50945099        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50955117        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50965118        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 50995116        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 51165121        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 51175127        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 51185128        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 51215126        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50545061        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50555063        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 5L015077        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 50425058        -0.0201       -0.0201              GLOB UNIF   PLT1CM

LOAD Z 50435059        -0.0402       -0.0402              GLOB UNIF   PLT1CM

LOAD Z 50445078        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50455079        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50465080        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50475081        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50485082        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50495064        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50505065        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50515085        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50525086        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50535060        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 50545061        -0.0241       -0.0241              GLOB UNIF   PLT1CM

LOAD Z 50585070        -0.0201       -0.0201              GLOB UNIF   PLT1CM

LOAD Z 50595071        -0.0402       -0.0402              GLOB UNIF   PLT1CM

LOAD Z 50645066        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50655067        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50665083        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50675084        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50705075        -0.0201       -0.0201              GLOB UNIF   PLT1CM

LOAD Z 50715076        -0.0402       -0.0402              GLOB UNIF   PLT1CM
```

```
LOAD Z 50725089       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50875097       -0.0201       -0.0201             GLOB UNIF   PLT1CM
LOAD Z 50885098       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 50895094       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50945099       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50975111       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 51115119       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 50995116       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 51165121       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 51195L04       -0.0201       -0.0201             GLOB UNIF   PLT1CM
LOAD Z 51595172       -0.0201       -0.0201             GLOB UNIF   PLT1CM
LOAD Z 5L045159       -0.0201       -0.0201             GLOB UNIF   PLT1CM
LOAD Z 51215126       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51265132       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51325144       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51435145       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 51445146       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51455173       -0.0442       -0.0442             GLOB UNIF   PLT1CM
LOAD Z 51465174       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50875097       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50975111       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50835107       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 50845108       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 50855109       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 50865110       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51115119       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51195L04       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51075130       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51095141       -0.0724       -0.0724             GLOB UNIF   PLT1CM
LOAD Z 51105142       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51305139       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51595172       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 5L045159       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51395155       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51405156       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51415157       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51425158       -0.0483       -0.0483             GLOB UNIF   PLT1CM
LOAD Z 51555168       -0.0241       -0.0241             GLOB UNIF   PLT1CM
LOAD Z 51565169       -0.0483       -0.0483             GLOB UNIF   PLT1CM
```

```
LOAD Z 51575170        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51585171        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51535166        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 51545167        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51555168        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 50815106        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50835107        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51065129        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51075130        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51295138        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51305139        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51385153        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51395155        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51495162        -0.0442       -0.0442              GLOB UNIF   PLT1CM
LOAD Z 5L035149        -0.0442       -0.0442              GLOB UNIF   PLT1CM
LOAD Z 51335147        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 51345148        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 51355150        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51365151        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51375152        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51385153        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 51475160        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 51485161        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 51505163        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51515164        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51525165        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51535166        -0.0241       -0.0241              GLOB UNIF   PLT1CM
LOAD Z 51025L03        -0.0442       -0.0442              GLOB UNIF   PLT1CM
LOAD Z 51005114        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 51015115        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 51035135        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51045136        -0.0724       -0.0724              GLOB UNIF   PLT1CM
LOAD Z 51065129        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 51145124        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 51155125        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 51245133        -0.0201       -0.0201              GLOB UNIF   PLT1CM
LOAD Z 51255134        -0.0402       -0.0402              GLOB UNIF   PLT1CM
LOAD Z 51295138        -0.0483       -0.0483              GLOB UNIF   PLT1CM
LOAD Z 50775102        -0.0442       -0.0442              GLOB UNIF   PLT1CM
```

```
LOAD Z 50755092        -0.0201       -0.0201              GLOB UNIF   PLT1CM

LOAD Z 50765093        -0.0402       -0.0402              GLOB UNIF   PLT1CM

LOAD Z 50785103        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50795104        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50805105        -0.0483       -0.0483              GLOB UNIF   PLT1CM

LOAD Z 50815106        -0.0241       -0.0241              GLOB UNIF   PLT1CM

LOAD Z 50925100        -0.0201       -0.0201              GLOB UNIF   PLT1CM

LOAD Z 50935101        -0.0402       -0.0402              GLOB UNIF   PLT1CM

LOAD Z 50565068        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 50575069        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50585070        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50685090        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 50695091        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50705075        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50755092        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50905112        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 50915113        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 50925100        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 51005114        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 51125122        -0.0193       -0.0193              GLOB UNIF   PLT1CM

LOAD Z 51135123        -0.0412       -0.0412              GLOB UNIF   PLT1CM

LOAD Z 51145124        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 502L542L 1.00000-1.7643                            GLOB CONC   STBGD

LOAD Z 5L025175        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 51755087        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 50605176        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 51765088        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 50615177        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 50615177        -0.0241       -0.0241              GLOB UNIF   PLT1CM

LOAD Z 51775072        -0.0219       -0.0219              GLOB UNIF   PLT1CM

LOAD Z 51775072        -0.0241       -0.0241              GLOB UNIF   PLT1CM

LOAD Z 50985120        -0.0442       -0.0442              GLOB UNIF   PLT1CM

LOAD Z 50985120 2.56700-0.04422.93300-0.0442              GLOB UNIF   PLT1CM

LOAD Z 50135179        -0.0151       -0.0151              GLOB UNIF   HDRMAIN

LOAD Z 51795014        -0.0151       -0.0151              GLOB UNIF   HDRMAIN

LOADCN  26

LOADLB26  JACKET NON GENERATED DEAD LOAD

LOAD   103                    -1.1027                     GLOB JOIN   TRUNION

LOAD   2P16                   -1.1027                     GLOB JOIN   TRUNION
```

```
LOAD   402L                -1.1027                    GLOB JOIN   PADEYE
LOAD   401L                -1.1027                    GLOB JOIN   PADEYE
LOAD   403L                -1.1027                    GLOB JOIN   PADEYE
LOAD Z M001101L       -0.0140       -0.0140           GLOB UNIF   PLATE
LOAD Z M014102L       -0.0140       -0.0140           GLOB UNIF   PLATE
LOAD Z M007M008       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M008M009       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M009M010       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M010M011       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M011M012       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M012M013       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M013M014       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M006M007       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M005M006       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M004M005       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M003M004       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M001M002       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M002M003       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M030M031       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M027M028       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M026M027       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M025M026       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z 101LM024       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M024M025       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M031M032       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M034M035       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M035M036       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M036M037       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M037M038       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M038102L       -0.0226       -0.0226           GLOB UNIF   PLATE
LOAD Z M002M024       -0.0240       -0.0240           GLOB UNIF   PLATE
LOAD Z M003M025       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M004M026       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M005M027       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M006M028       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M007M030       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M008M032       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M009M034       -0.0200       -0.0200           GLOB UNIF   PLATE
LOAD Z M010M035       -0.0200       -0.0200           GLOB UNIF   PLATE
```

```
LOAD Z M011M036        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M012M037        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M013M038        -0.0240       -0.0240              GLOB UNIF   PLATE

LOAD Z M032M033        -0.0226       -0.0226              GLOB UNIF   PLATE

LOAD Z M033M034        -0.0226       -0.0226              GLOB UNIF   PLATE

LOAD Z M028M029        -0.0226       -0.0226              GLOB UNIF   PLATE

LOAD Z M029M030        -0.0226       -0.0226              GLOB UNIF   PLATE

LOAD Z M014102L        -0.0120       -0.0120              GLOB UNIF   PLATE

LOAD Z M016M041        -0.0320       -0.0320              GLOB UNIF   PLATE

LOAD Z M018M042        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M001101L        -0.0120       -0.0120              GLOB UNIF   PLATE

LOAD Z M017M020        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M015M021        -0.0320       -0.0320              GLOB UNIF   PLATE

LOAD Z M042M049        -0.0201       -0.0201              GLOB UNIF   PLATE

LOAD Z M042M049        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M041M070        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M045M069        -0.0151       -0.0151              GLOB UNIF   PLATE

LOAD Z M038102L        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M067M068        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z 102LM041        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M069M070        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M038M067        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M037M066        -0.0400       -0.0400              GLOB UNIF   PLATE

LOAD Z M036M065        -0.0400       -0.0400              GLOB UNIF   PLATE

LOAD Z M035M064        -0.0400       -0.0400              GLOB UNIF   PLATE

LOAD Z M034M063        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M034M063        -0.0300       -0.0300              GLOB UNIF   PLATE

LOAD Z M059M060        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M060M061        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M061M062        -0.0401       -0.0401              GLOB UNIF   PLATE

LOAD Z M028M058        -0.0300       -0.0300              GLOB UNIF   PLATE

LOAD Z M024M054        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M025M055        -0.0400       -0.0400              GLOB UNIF   PLATE

LOAD Z M026M056        -0.0400       -0.0400              GLOB UNIF   PLATE

LOAD Z M027M057        -0.0400       -0.0400              GLOB UNIF   PLATE

LOAD Z M028M058        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M024M054        -0.0280       -0.0280              GLOB UNIF   PLATE

LOAD Z M044M052        -0.0151       -0.0151              GLOB UNIF   PLATE

LOAD Z M021M051        -0.0200       -0.0200              GLOB UNIF   PLATE
```

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LOAD Z M044M052       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M020M048       -0.0201       -0.0201             GLOB UNIF   PLATE

LOAD Z M055M082       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M056M083       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M057M084       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M058M074       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M074M086       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M060M087       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M063M075       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M064M091       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M065M092       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M066M093       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M075M089       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M061M088       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M080M109       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M082M098       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M098M110       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M083M106       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M106M111       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M084M100       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M100M113       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M086M114       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M087M115       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M095M122       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M092M107       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M107M120       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M089M117       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M088M116       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M093M099       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M099M121       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M091M101       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M101M118       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M110M129       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M111M130       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M121M140       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M120M139       -0.0400       -0.0400             GLOB UNIF   PLATE

LOAD Z M143M152       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M139M159       -0.0200       -0.0200             GLOB UNIF   PLATE

LOAD Z M152M165       -0.02000.00129-0.0200             GLOB UNIF   PLATE
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LOAD Z	M130M154	-0.0200	-0.0200	GLOB UNIF	PLATE
LOAD Z	M142M155	-0.0200	-0.0200	GLOB UNIF	PLATE
LOAD Z	M070M077	-0.0169	-0.0169	GLOB UNIF	PLATE
LOAD Z	M069M070	-0.0401	-0.0401	GLOB UNIF	PLATE
LOAD Z	M096M097	-0.0401	-0.0401	GLOB UNIF	PLATE
LOAD Z	M068M069	-0.0401	-0.0401	GLOB UNIF	PLATE
LOAD Z	M095M096	-0.0401	-0.0401	GLOB UNIF	PLATE
LOAD Z	M095M096	-0.0394	-0.0394	GLOB UNIF	PLATE
LOAD Z	M122M123	-0.0394	-0.0394	GLOB UNIF	PLATE
LOAD Z	M121M122	-0.0304	-0.0304	GLOB UNIF	PLATE
LOAD Z	M140M141	-0.0304	-0.0304	GLOB UNIF	PLATE
LOAD Z	M139M140	-0.0387	-0.0387	GLOB UNIF	PLATE
LOAD Z	M159M160	-0.0387	-0.0387	GLOB UNIF	PLATE
LOAD Z	M096M103	-0.0138	-0.0138	GLOB UNIF	PLATE
LOAD Z	M122M127	-0.0111	-0.0111	GLOB UNIF	PLATE
LOAD Z	M140M146	-0.0136	-0.0136	GLOB UNIF	PLATE
LOAD Z	M159M167	-0.0112	-0.0112	GLOB UNIF	PLATE
LOAD Z	M154M166	-0.0112	-0.0112	GLOB UNIF	PLATE
LOAD Z	M129M145	-0.0135	-0.0135	GLOB UNIF	PLATE
LOAD Z	M109M126	-0.0111	-0.0111	GLOB UNIF	PLATE
LOAD Z	M079M102	-0.0138	-0.0138	GLOB UNIF	PLATE
LOAD Z	M051M076	-0.0169	-0.0169	GLOB UNIF	PLATE
LOAD Z	M053M054	-0.0400	-0.0400	GLOB UNIF	PLATE
LOAD Z	M054M055	-0.0400	-0.0400	GLOB UNIF	PLATE
LOAD Z	M072M080	-0.0182	-0.0182	GLOB UNIF	PLATE
LOAD Z	M052M053	-0.0400	-0.0400	GLOB UNIF	PLATE
LOAD Z	M079M080	-0.0400	-0.0400	GLOB UNIF	PLATE
LOAD Z	M051M052	-0.0400	-0.0400	GLOB UNIF	PLATE
LOAD Z	M078M079	-0.0400	-0.0400	GLOB UNIF	PLATE
LOAD Z	M079M080	-0.0393	-0.0393	GLOB UNIF	PLATE
LOAD Z	M108M109	-0.0393	-0.0393	GLOB UNIF	PLATE
LOAD Z	M109M110	-0.0304	-0.0304	GLOB UNIF	PLATE
LOAD Z	M128M129	-0.0304	-0.0304	GLOB UNIF	PLATE
LOAD Z	M129M130	-0.0386	-0.0386	GLOB UNIF	PLATE
LOAD Z	M153M154	-0.0386	-0.0386	GLOB UNIF	PLATE
LOAD Z	M155M156	-0.0361	-0.0361	GLOB UNIF	PLATE
LOAD Z	M158M152	-0.0386	-0.0386	GLOB UNIF	PLATE
LOAD Z	M185M190	-0.0161	-0.0161	GLOB UNIF	PLATE
LOAD Z	M184M189	-0.0161	-0.0161	GLOB UNIF	PLATE

```
LOAD Z M189M190        -0.0556       -0.0556              GLOB UNIF   PLATE

LOAD Z 103LM185        -0.0173       -0.0173              GLOB UNIF   PLATE

LOAD Z M178M186        -0.0195       -0.0195              GLOB UNIF   PLATE

LOAD Z M179M187        -0.0195       -0.0195              GLOB UNIF   PLATE

LOAD Z M177M179        -0.0389       -0.0389              GLOB UNIF   PLATE

LOAD Z M176M178        -0.0389       -0.0389              GLOB UNIF   PLATE

LOAD Z M187M191        -0.0451       -0.0451              GLOB UNIF   PLATE

LOAD Z M177103L        -0.0451       -0.0451              GLOB UNIF   PLATE

LOAD Z M186M188        -0.0451       -0.0451              GLOB UNIF   PLATE

LOAD Z M176103L        -0.0451       -0.0451              GLOB UNIF   PLATE

LOAD Z M156M161        -0.0181       -0.0181              GLOB UNIF   PLATE

LOAD Z M155M164        -0.0230       -0.0230              GLOB UNIF   PLATE

LOAD Z M154M166        -0.02002.53359-0.0200              GLOB UNIF   PLATE

LOAD Z M155M164        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M164M172        -0.0068       -0.0068              GLOB UNIF   PLATE

LOAD Z M152M165        -0.0208       -0.0208              GLOB UNIF   PLATE

LOAD Z M158M162        -0.0262       -0.0262              GLOB UNIF   PLATE

LOAD Z M159M167        -0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M152M165 0.00133-0.0200       -0.0200              GLOB UNIF   PLATE

LOAD Z M167M173        -0.0189       -0.0189              GLOB UNIF   PLATE

LOAD   M031                  -0.5072                     GLOB JOIN   ANODE

LOAD   M112                  -0.5072                     GLOB JOIN   ANODE

LOAD   M119                  -0.5072                     GLOB JOIN   ANODE

LOAD   206                   -0.5072                     GLOB JOIN   ANODE

LOAD   209                   -0.5072                     GLOB JOIN   ANODE

LOAD   202                   -0.5072                     GLOB JOIN   ANODE

LOAD Z 101 201L 16.0000-0.5072                           GLOB CONC   ANODE

LOAD Z 102 202L 16.0000-0.5072                           GLOB CONC   ANODE

LOAD Z 103 203L 16.0000-0.5072                           GLOB CONC   ANODE

LOAD Z 201LM031 19.0000-0.5072                           GLOB CONC   ANODE

LOAD Z M031202L 19.0000-0.5072                           GLOB CONC   ANODE

LOAD Z 202LM119 19.0000-0.5072                           GLOB CONC   ANODE

LOAD Z M119203L 19.0000-0.5072                           GLOB CONC   ANODE

LOAD Z M112201L 19.0000-0.5072                           GLOB CONC   ANODE

LOAD Z 203LM112 19.0000-0.5072                           GLOB CONC   ANODE

LOAD Z 201L20C1 7.00000-0.5072                           GLOB CONC   ANODE

LOAD Z 202L20C2 7.00000-0.5072                           GLOB CONC   ANODE

LOAD Z 203L20C3 7.00000-0.5072                           GLOB CONC   ANODE

LOAD Z 202L20C4 8.00000-0.5072                           GLOB CONC   ANODE
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LOAD Z 203L20C6 8.00000-0.5072                          GLOB CONC   ANODE

LOAD Z 201L20C8 8.00000-0.5072                          GLOB CONC   ANODE

LOAD Z 301 303         -0.0261       -0.0261            GLOB UNIF   GRTJKT

LOAD Z 302 304         -0.0261       -0.0261            GLOB UNIF   GRTJKT

LOAD Z 303 305         -0.0261       -0.0261            GLOB UNIF   GRTJKT

LOAD Z 304 307         -0.0261       -0.0261            GLOB UNIF   GRTJKT

LOAD Z 306 312         -0.0313       -0.0313            GLOB UNIF   GRTJKT

LOAD Z 308 313         -0.0313       -0.0313            GLOB UNIF   GRTJKT

LOAD Z 312 315         -0.0313       -0.0313            GLOB UNIF   GRTJKT

LOAD Z 313 316         -0.0313       -0.0313            GLOB UNIF   GRTJKT

LOAD Z 313 314         -0.0258       -0.0258            GLOB UNIF   GRTJKT

LOAD Z 314 318         -0.0095       -0.0095            GLOB UNIF   GRTJKT

LOAD Z 317 318         -0.0156       -0.0156            GLOB UNIF   GRTJKT

LOAD Z 321 322         -0.0156       -0.0156            GLOB UNIF   GRTJKT

LOAD Z P118325         -0.0155       -0.0155            GLOB UNIF   GRTJKT

LOAD Z 321 322         -0.0155       -0.0155            GLOB UNIF   GRTJKT

LOAD Z 320 321         -0.0155       -0.0155            GLOB UNIF   GRTJKT

LOAD Z 316 319         -0.0313       -0.0313            GLOB UNIF   GRTJKT

LOAD Z 315 320         -0.0161       -0.0161            GLOB UNIF   GRTJKT

LOAD Z 319 321         -0.0323       -0.0323            GLOB UNIF   GRTJKT

LOAD Z 345 346         -0.0172       -0.0172            GLOB UNIF   GRTJKT

LOAD Z 347 348  0.01592-0.0343       -0.0343            GLOB UNIF   GRTJKT

LOAD Z 349 350  0.03184-0.0172       -0.0172            GLOB UNIF   GRTJKT

LOAD Z 349 351         -0.0157       -0.0157            GLOB UNIF   GRTJKT

LOAD Z 354 355         -0.0157       -0.0157            GLOB UNIF   GRTJKT

LOAD Z 352 353         -0.0313       -0.0313            GLOB UNIF   GRTJKT

LOAD Z 310 311         -0.0204       -0.0204            GLOB UNIF   GRTJKT

LOAD Z 311 345         -0.0204       -0.0204            GLOB UNIF   GRTJKT

LOAD Z 314 346         -0.0206       -0.0206            GLOB UNIF   GRTJKT

LOAD Z 323 P118        -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 320 323         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 315 320         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 301L315         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z P118325         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 322 325         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 318 322         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 314 318         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 346 348         -0.1507       -0.1507            GLOB UNIF   HRDJKT

LOAD Z 348 350         -0.1507       -0.1507            GLOB UNIF   HRDJKT
```

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LOAD Z 350 P018        -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 324 P018        -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 351 324         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 351 353         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 353 355         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 354 355         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 352 354         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 349 352         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 347 349         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 345 347         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 311 345         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 310 311         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 309 310         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 314 346         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 308 309         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 307 308         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 301L305         -0.1507       -0.1507              GLOB UNIF   HRDJKT

LOAD Z 13071313        -0.0197       -0.0197              GLOB UNIF   GRTBTL

LOAD Z 13081315        -0.0157       -0.0157              GLOB UNIF   GRTBTL

LOAD Z 13121308        -0.0172       -0.0172              GLOB UNIF   GRTBTL

LOAD Z 13151314        -0.0157       -0.0157              GLOB UNIF   GRTBTL

LOAD Z 13161307        -0.0191       -0.0191              GLOB UNIF   GRTBTL

LOAD Z 13101305        -0.0191       -0.0191              GLOB UNIF   GRTBTL

LOAD Z 13111306        -0.0382       -0.0382              GLOB UNIF   GRTBTL

LOAD Z 13161307        -0.0191       -0.0191              GLOB UNIF   GRTBTL

LOAD Z 13011305        -0.0289       -0.0289              GLOB UNIF   GRTBTL

LOAD Z 13031309        -0.0363       -0.0363              GLOB UNIF   GRTBTL

LOAD Z 13091310        -0.0253       -0.0253              GLOB UNIF   GRTBTL

LOAD Z 13061307        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 13051306        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 13011305        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 13071313        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 13151314        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 13081315        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 12111202        -0.0289       -0.0289              GLOB UNIF   GRTBTL

LOAD Z 12191220        -0.0253       -0.0253              GLOB UNIF   GRTBTL

LOAD Z 12201204        -0.0363       -0.0363              GLOB UNIF   GRTBTL

LOAD Z 12161208        -0.0191       -0.0191              GLOB UNIF   GRTBTL

LOAD Z 12171209        -0.0382       -0.0382              GLOB UNIF   GRTBTL
```

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LOAD Z 12181210        -0.0382       -0.0382              GLOB UNIF   GRTBTL

LOAD Z 12191211        -0.0191       -0.0191              GLOB UNIF   GRTBTL

LOAD Z 12081209        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 12091210        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 12101211        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 12111202        -0.0151       -0.0151              GLOB UNIF   HDRBTL

LOAD Z 12121309        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11121212        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10121112        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10131113        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11131213        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 12131310        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 12141311        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11141214        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10141114        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10151115        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11151215        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 12151316        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 12161312        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11161216        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10161116        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10171117        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11171217        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11181218        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10181118        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10191119        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11191219        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11201220        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10201120        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10041104        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11041204        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 12031303        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 11031203        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD Z 10031103        -0.0488       -0.0488              GLOB UNIF   W1240

LOAD   1218                  -0.0800                     GLOB JOIN   STRW1

LOAD   1210                  -0.0800                     GLOB JOIN   STRW1

LOAD   1312                  -0.0800                     GLOB JOIN   STRW1

LOAD   1308                  -0.0800                     GLOB JOIN   STRW1

LOAD   1307                  -0.0800                     GLOB JOIN   STRW1
```

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LOAD   1313                  -0.0800                    GLOB JOIN   STRW1

LOAD   302                   -0.0800                    GLOB JOIN   STRW1

LOAD   304                   -0.0800                    GLOB JOIN   STRW1

LOAD Z 301L401L        -0.6193       -0.6193            GLOB UNIF   CRWN

LOAD Z 303L403L        -0.6193       -0.6193            GLOB UNIF   CRWN

LOAD Z 302L402L        -0.6193       -0.6193            GLOB UNIF   CRWN

LOAD Z 306 312         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 312 315         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 315 320         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 320 321         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 321 322         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 318 322         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 314 318         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 314 346         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 346 348         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 348 350         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 350 P018        -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 324 P018        -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 351 324         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 351 353         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 353 355         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 354 355         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 352 354         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 349 352         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 347 349         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 345 347         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 311 345         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 310 311         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 309 310         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 308 309         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 307 308         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

LOAD Z 306 307         -0.0847       -0.0847            GLOB UNIF   ATHIEFT

*

*MECHANICAL WEIGHT

LOADCN  31

LOADLB31  MECHANICAL WEIGHT

LOAD   7000                  -44.108                    GLOB JOIN   Z011

LOAD   V021                  -0.3310                    GLOB JOIN   Z01A

LOAD   V010                  -0.3310                    GLOB JOIN   Z01B
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LOAD   601C                  -6.6161                     GLOB JOIN   WH001

LOAD   602C                  -6.6161                     GLOB JOIN   WH002

LOAD   603C                  -6.6161                     GLOB JOIN   WH003

LOAD   604C                  -6.6161                     GLOB JOIN   WH004

LOAD   605C                  -6.6161                     GLOB JOIN   WH005

LOAD Z 50665067 1.50000-0.8822                           GLOB CONC   L001

LOAD Z 50645065 1.50000-0.8822                           GLOB CONC   L001

LOAD Z 30823083 1.50000-0.8822                           GLOB CONC   L001

LOAD Z 30643065 1.50000-0.8822                           GLOB CONC   L001

LOAD Z 50585070        -0.0586       -0.0586             GLOB UNIF   Z002

LOAD Z 50595071        -0.0586       -0.0586             GLOB UNIF   Z002

LOAD Z 50115035        -0.3709       -0.3709             GLOB UNIF   Z004

LOAD Z 50105034        -0.2023       -0.2023             GLOB UNIF   Z004

LOAD Z 50125036        -0.3709       -0.3709             GLOB UNIF   Z004

LOAD Z 50135037        -0.5480       -0.5480             GLOB UNIF   Z004

LOAD Z 50145038        -0.3457       -0.3457             GLOB UNIF   Z004

LOAD Z 50055022        -0.4404       -0.4404             GLOB UNIF   Z007

LOAD Z 50065030        -0.8807       -0.8807             GLOB UNIF   Z007

LOAD Z 50075031        -0.8807       -0.8807             GLOB UNIF   Z007

LOAD Z 50085032        -0.8807       -0.8807             GLOB UNIF   Z007

LOAD Z 50095033        -0.4404       -0.4404             GLOB UNIF   Z007

LOAD Z 50225029        -0.4404       -0.4404             GLOB UNIF   Z007

LOAD Z 50295047        -0.44042.00000-0.4404             GLOB UNIF   Z007

LOAD Z 50305048        -0.88072.00000-0.8807             GLOB UNIF   Z007

LOAD Z 50315049        -0.88072.00000-0.8807             GLOB UNIF   Z007

LOAD Z 50325050        -0.88072.00000-0.8807             GLOB UNIF   Z007

LOAD Z 50335051        -0.44042.00000-0.4404             GLOB UNIF   Z007

LOAD Z 5L015077 3.00000-2.2050                           GLOB CONC   P012

LOAD Z 5L015077 7.00000-6.6162                           GLOB CONC   T012

LOAD Z 30093024        -0.0540       -0.0540             GLOB UNIF   Z008

LOAD Z 30103025        -0.0540       -0.0540             GLOB UNIF   Z008

LOAD   3018                  -17.643                     GLOB JOIN   V003

LOAD Z 31213145 4.00000-1.8970                           GLOB CONC   V009

LOAD Z 30943121 5.00000-1.8970                           GLOB CONC   V009

LOAD Z 20152022 3.81308-0.2647                           GLOB CONC   P009

*

***LDS1**     22.875   -16.240    63.000    22.875   -16.240    63.000

***LDS2**               -2.050                                 6.000     4.200

***LDS3**      1.000   1   2   2   0   031    -1EQUPSKIDZ-006N  X
```

```
LOAD Z 50375054 0.65000-0.5500                              GLOB CONC   Z-006N

LOAD Z 50375054 4.85000-0.5500                              GLOB CONC   Z-006N

LOAD Z 50385055 0.65000-0.4750                              GLOB CONC   Z-006N

LOAD Z 50385055 4.85000-0.4750                              GLOB CONC   Z-006N

*

***LDS1**     22.875   -11.080    63.000    22.875   -11.080    63.000

***LDS2**               -2.050                                  6.000     4.200

***LDS3**      1.000   1   2   2   0   031    -1EQUPSKIDZ-005N  X

LOAD Z 50375054 5.81000-0.5555                              GLOB CONC   Z-005N

LOAD Z 50385055 5.81000-0.4695                              GLOB CONC   Z-005N

LOAD Z 50625073 0.03500-0.3398                              GLOB CONC   Z-005N

LOAD Z 50635074 0.03500-0.2996                              GLOB CONC   Z-005N

*

***LDS1**     -5.300   -18.800    63.000    -5.300   -18.800    63.000

***LDS2**               -0.800                                  5.000     3.000

***LDS3**      1.000   1   2   2   0   031    -1EQUPSKIDZ-003N  X

LOAD Z 50215028 0.48200-0.3067                              GLOB CONC   Z-003N

LOAD Z 50225029 0.48200-0.0933                              GLOB CONC   Z-003N

LOAD Z 50285046 1.69000-0.3067                              GLOB CONC   Z-003N

LOAD Z 50295047 1.69000-0.0933                              GLOB CONC   Z-003N

LOAD Z 50615177 0.03500-0.3856                              GLOB CONC   Z-005N

LOAD Z 50975098 1.50000-15.000       -15.000                GLOB UNIF   V-XXX

LOAD Z 51755176 1.50000-15.000       -15.000                GLOB UNIF   V-XXX

LOAD Z 50985099        -13.3331.50000-13.333                GLOB UNIF   V-XXX

LOAD Z 51765177        -13.3331.50000-13.333                GLOB UNIF   V-XXX

*

*CRANE SWL LOAD AND MOMENTS

LOADCN  32

LOADLB32  CRANE SWL LOAD

LOAD   7000                  -11.027                        GLOB JOIN   Z011

*

LOADCN  33

LOADLB33  CRANE MOMENT +X DIRECTION

LOAD   7000                           5292.90               GLOB JOIN   Z011XDIR

*

LOADCN  34

LOADLB34  CRANE MOMENT +Y DIRECTION

LOAD   7000                                  5292.90        GLOB JOIN   Z011YDIR

*
```

```
*PIPING LOAD INCLUDING 20% CONTENT

LOADCN  36   1.456 1.0000  1.000  1.000 1.0000

LOADLB36  PIPING LOAD

LOAD   V021                  -0.1200                    GLOB JOIN   PIPE1

LOAD   V018                  -0.1200                    GLOB JOIN   PIPE1

LOAD   V015                  -0.1200                    GLOB JOIN   PIPE1

LOAD   V012                  -0.1200                    GLOB JOIN   PIPE1

LOAD   V009                  -0.1200                    GLOB JOIN   PIPE1

LOAD   V006                  -0.1200                    GLOB JOIN   PIPE1

LOAD   V007                  -0.1040                    GLOB JOIN   PIPE2

LOAD   V010                  -0.1040                    GLOB JOIN   PIPE2

LOAD Z 50605061        -0.0361       -0.0361             GLOB UNIF   PPMA2

LOAD Z 50725089        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50885089        -0.0361       -0.0361             GLOB UNIF   PPMA2

LOAD Z 50535054        -0.0514       -0.0514             GLOB UNIF   PPMA2

LOAD Z 50365037        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50365053        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50375054        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50535060        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50545061        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50605061        -0.0205       -0.0205             GLOB UNIF   PPMA2

LOAD Z 50355L02        -0.0283       -0.0283             GLOB UNIF   PPMA2

LOAD Z 50505051        -0.0874       -0.0874             GLOB UNIF   PPMA2

LOAD Z 50515052        -0.0874       -0.0874             GLOB UNIF   PPMA2

LOAD Z 50525L02        -0.0874       -0.0874             GLOB UNIF   PPMA2

LOAD Z 5L025053        -0.0874       -0.0874             GLOB UNIF   PPMA2

LOAD Z 50325033        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50325050        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50335034        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50335051        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50345035        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50345052        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50355036        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50365053        -0.0129       -0.0129             GLOB UNIF   PPMA2

LOAD Z 50505065        -0.0155       -0.0155             GLOB UNIF   PPMA2

LOAD Z 50515085        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50525086        -0.0309       -0.0309             GLOB UNIF   PPMA2

LOAD Z 50535060        -0.0129       -0.0129             GLOB UNIF   PPMA2

LOAD Z 50655067        -0.0155       -0.0155             GLOB UNIF   PPMA2
```

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LOAD Z 50675084        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50845085        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50855086        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50865087        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50875088        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50495050        -0.0547       -0.0547              GLOB UNIF   PPMA2
LOAD Z 50315032        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50315049        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50325050        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50495064        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50505065        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50645065        -0.0358       -0.0358              GLOB UNIF   PPMA2
LOAD Z 50645066        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50655067        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50665067        -0.0327       -0.0327              GLOB UNIF   PPMA2
LOAD Z 50665083        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50675084        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50835084        -0.0207       -0.0207              GLOB UNIF   PPMA2
LOAD Z 50455046        -0.0874       -0.0874              GLOB UNIF   PPMA2
LOAD Z 50465047        -0.0874       -0.0874              GLOB UNIF   PPMA2
LOAD Z 50475048        -0.0874       -0.0874              GLOB UNIF   PPMA2
LOAD Z 50485049        -0.0874       -0.0874              GLOB UNIF   PPMA2
LOAD Z 50275028        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50275045        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50285029        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50285046        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50295030        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50295047        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50305031        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50305048        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50315049        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50455079        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50465080        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50475081        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50485082        -0.0309       -0.0309              GLOB UNIF   PPMA2
LOAD Z 50495064        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50645066        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50665083        -0.0155       -0.0155              GLOB UNIF   PPMA2
LOAD Z 50795080        -0.0565       -0.0565              GLOB UNIF   PPMA2
```

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LOAD Z 50805081        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50815082        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50825083        -0.0565       -0.0565              GLOB UNIF   PPMA2
LOAD Z 50255041        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 50415L01        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 50445045        -0.0874       -0.0874              GLOB UNIF   PPMA1
LOAD Z 50775102        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 51025L03        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 51495150        -0.0361       -0.0361              GLOB UNIF   PPMA1
LOAD Z 51495162        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 51505151        -0.0361       -0.0361              GLOB UNIF   PPMA1
LOAD Z 5L015044        -0.0874       -0.0874              GLOB UNIF   PPMA1
LOAD Z 5L015077        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 5L035149        -0.0154       -0.0154              GLOB UNIF   PPMA1
LOAD Z 50255026        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 50265027        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 50265044        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 50275045        -0.0155       -0.0155              GLOB UNIF   PPMA1
LOAD Z 50445078        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 50455079        -0.0155       -0.0155              GLOB UNIF   PPMA1
LOAD Z 50775078        -0.0874       -0.0874              GLOB UNIF   PPMA1
LOAD Z 50785079        -0.0874       -0.0874              GLOB UNIF   PPMA1
LOAD Z 50785103        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 50795104        -0.0155       -0.0155              GLOB UNIF   PPMA1
LOAD Z 51025103        -0.0773       -0.0773              GLOB UNIF   PPMA1
LOAD Z 51035104        -0.0773       -0.0773              GLOB UNIF   PPMA1
LOAD Z 51035135        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 51045136        -0.0155       -0.0155              GLOB UNIF   PPMA1
LOAD Z 51355136        -0.0626       -0.0626              GLOB UNIF   PPMA1
LOAD Z 51355150        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 51365151        -0.0155       -0.0155              GLOB UNIF   PPMA1
LOAD Z 51505163        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 51515164        -0.0155       -0.0155              GLOB UNIF   PPMA1
LOAD Z 51625163        -0.0199       -0.0199              GLOB UNIF   PPMA1
LOAD Z 51635164        -0.0199       -0.0199              GLOB UNIF   PPMA1
LOAD Z 5L035135        -0.0626       -0.0626              GLOB UNIF   PPMA1
LOAD Z 50255041        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 50415L01        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 50435L01        -0.0746       -0.0746              GLOB UNIF   PPMA1
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LOAD Z 50775102        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51025L03        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51345L03        -0.0825       -0.0825              GLOB UNIF   PPMA1

LOAD Z 51495162        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 5L015077        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 5L035149        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50245025        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50245040        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50405043        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50435059        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50595071        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50715076        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50765077        -0.0874       -0.0874              GLOB UNIF   PPMA1

LOAD Z 50765093        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50935101        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51015102        -0.0773       -0.0773              GLOB UNIF   PPMA1

LOAD Z 51015115        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51155125        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51255134        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51345148        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51485161        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 51615162        -0.0361       -0.0361              GLOB UNIF   PPMA1

LOAD Z 50405041        -0.0309       -0.0309              GLOB UNIF   PPMA1

LOAD Z 50425043        -0.0385       -0.0385              GLOB UNIF   PPMA1

LOAD Z 51335134        -0.0577       -0.0577              GLOB UNIF   PPMA1

LOAD Z 50235024        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50235039        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50245040        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50395042        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50405043        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50425058        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50435059        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50585059        -0.0379       -0.0379              GLOB UNIF   PPMA1

LOAD Z 50585070        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50595071        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50705071        -0.0361       -0.0361              GLOB UNIF   PPMA1

LOAD Z 50705075        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50715076        -0.0129       -0.0129              GLOB UNIF   PPMA1

LOAD Z 50755076        -0.0284       -0.0284              GLOB UNIF   PPMA1
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LOAD Z 50755092        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 50765093        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 50925093        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 50925100        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 50935101        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51005101        -0.0284       -0.0284              GLOB UNIF   PPMA1
LOAD Z 51005114        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51015115        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51145115        -0.0247       -0.0247              GLOB UNIF   PPMA1
LOAD Z 51145124        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51155125        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51245125        -0.0391       -0.0391              GLOB UNIF   PPMA1
LOAD Z 51245133        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51255134        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51335147        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51345148        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51475160        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51485161        -0.0129       -0.0129              GLOB UNIF   PPMA1
LOAD Z 51605161        -0.0361       -0.0361              GLOB UNIF   PPMA1
LOAD Z 50395040        -0.0309       -0.0309              GLOB UNIF   PPMA1
LOAD Z 40524066        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40514058        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40314032        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40314043        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40324044        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40434044        -0.0130       -0.0130              GLOB UNIF   PPMZ1
LOAD Z 40434048        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40444052        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40484051        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40584065        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40654066        -0.0106       -0.0106              GLOB UNIF   PPMZ1
LOAD Z 40654075        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40664076        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40754076        -0.0054       -0.0054              GLOB UNIF   PPMZ1
LOAD Z 40514052        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40424043        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40294030        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40294034        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40304031        -0.0061       -0.0061              GLOB UNIF   PPMZ1
```

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LOAD Z 40314043       -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40344036       -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40364041       -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40414042       -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40304042       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40514058       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40424043       -0.0030       -0.0030              GLOB UNIF   PPMZ1
LOAD Z 40414042       -0.0030       -0.0030              GLOB UNIF   PPMZ1
LOAD Z 40414047       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40434048       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40474050       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40484051       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40504054       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40544057       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40574060       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40584065       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40604064       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40644065       -0.0084       -0.0084              GLOB UNIF   PPMZ1
LOAD Z 40644068       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40654075       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40684073       -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40734074       -0.0054       -0.0054              GLOB UNIF   PPMZ1
LOAD Z 40744075       -0.0054       -0.0054              GLOB UNIF   PPMZ1
LOAD Z 40474048       -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40574058       -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40334034       -0.0030       -0.0030              GLOB UNIF   PPMZ1
LOAD Z 40334035       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40344036       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40354040       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40364041       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40404046       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40414047       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40464049       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40474050       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40494053       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40504054       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40534054       -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40534056       -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40544057       -0.0122       -0.0122              GLOB UNIF   PPMZ1
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LOAD Z 40564059        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40574060        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40594063        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40604064        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40634067        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40644068        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40354036        -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40494050        -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40594060        -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40674068        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40674072        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40684073        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40674068        -0.0020       -0.0020              GLOB UNIF   PPMZ1
LOAD Z 40284033        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40294034        -0.0122       -0.0122              GLOB UNIF   PPMZ1
LOAD Z 40334034        -0.0027       -0.0027              GLOB UNIF   PPMZ1
LOAD Z 40394040        -0.0030       -0.0030              GLOB UNIF   PPMZ1
LOAD Z 40384039        -0.0030       -0.0030              GLOB UNIF   PPMZ1
LOAD Z 40384045        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40404046        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40454055        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40464049        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40494053        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40534056        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40554062        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40564059        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40594063        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40624063        -0.0084       -0.0084              GLOB UNIF   PPMZ1
LOAD Z 40624070        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40634067        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40674072        -0.0121       -0.0121              GLOB UNIF   PPMZ1
LOAD Z 40704071        -0.0054       -0.0054              GLOB UNIF   PPMZ1
LOAD Z 40714072        -0.0054       -0.0054              GLOB UNIF   PPMZ1
LOAD Z 40454046        -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40554056        -0.0091       -0.0091              GLOB UNIF   PPMZ1
LOAD Z 40264027        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40394040        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40254026        -0.0061       -0.0061              GLOB UNIF   PPMZ1
LOAD Z 40254038        -0.0052       -0.0052              GLOB UNIF   PPMZ1
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LOAD Z 40274028        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40284033        -0.0069       -0.0069              GLOB UNIF   PPMZ1

LOAD Z 40334035        -0.0069       -0.0069              GLOB UNIF   PPMZ1

LOAD Z 40354040        -0.0069       -0.0069              GLOB UNIF   PPMZ1

LOAD Z 40384039        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40264039        -0.0122       -0.0122              GLOB UNIF   PPMZ1

LOAD Z 40244025        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40244037        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40254038        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40374038        -0.0182       -0.0182              GLOB UNIF   PPMZ1

LOAD Z 40374061        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40384045        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40454055        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40554062        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40614062        -0.0176       -0.0176              GLOB UNIF   PPMZ1

LOAD Z 40614069        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40624070        -0.0061       -0.0061              GLOB UNIF   PPMZ1

LOAD Z 40694070        -0.0054       -0.0054              GLOB UNIF   PPMZ1

LOAD Z 40734074        -0.0102       -0.0102              GLOB UNIF   PPMZ2

LOAD Z 40734079        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40744088        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40794087        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40874088        -0.0102       -0.0102              GLOB UNIF   PPMZ2

LOAD Z 40784079        -0.0081       -0.0081              GLOB UNIF   PPMZ2

LOAD Z 40784083        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40794087        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40864087        -0.0081       -0.0081              GLOB UNIF   PPMZ2

LOAD Z 40834086        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40814082        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40774081        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40774078        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40784083        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40854086        -0.0021       -0.0021              GLOB UNIF   PPMZ2

LOAD Z 40824085        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40834086        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40824083        -0.0081       -0.0081              GLOB UNIF   PPMZ2

LOAD Z 40804084        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40814082        -0.0061       -0.0061              GLOB UNIF   PPMZ2

LOAD Z 40714080        -0.0061       -0.0061              GLOB UNIF   PPMZ2
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LOAD Z 40714072        -0.0032       -0.0032              GLOB UNIF   PPMZ2
LOAD Z 40724077        -0.0061       -0.0061              GLOB UNIF   PPMZ2
LOAD Z 40774081        -0.0061       -0.0061              GLOB UNIF   PPMZ2
LOAD Z 40844085        -0.0069       -0.0069              GLOB UNIF   PPMZ2
LOAD Z 40824085        -0.0061       -0.0061              GLOB UNIF   PPMZ2
LOAD Z 40804081        -0.0102       -0.0102              GLOB UNIF   PPMZ2
LOAD Z 40724077        -0.0122       -0.0122              GLOB UNIF   PPMZ2
LOAD Z 40734079        -0.0122       -0.0122              GLOB UNIF   PPMZ2
LOAD Z 40774078        -0.0041       -0.0041              GLOB UNIF   PPMZ2
LOAD Z 40784079        -0.0041       -0.0041              GLOB UNIF   PPMZ2
LOAD Z 40144021        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40144015        -0.0108       -0.0108              GLOB UNIF   PPMZ3
LOAD Z 40214030        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40154031        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40304031        -0.0108       -0.0108              GLOB UNIF   PPMZ3
LOAD Z 40134014        -0.0044       -0.0044              GLOB UNIF   PPMZ3
LOAD Z 40144021        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40214030        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40204023        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40124013        -0.0044       -0.0044              GLOB UNIF   PPMZ3
LOAD Z 40124017        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40174020        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40234029        -0.0061       -0.0061              GLOB UNIF   PPMZ3
LOAD Z 40294030        -0.0064       -0.0064              GLOB UNIF   PPMZ3
LOAD Z 40204021        -0.0108       -0.0108              GLOB UNIF   PPMZ3
LOAD Z 40194022        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40094010        -0.0030       -0.0030              GLOB UNIF   PPMZ3
LOAD Z 40114012        -0.0030       -0.0030              GLOB UNIF   PPMZ3
LOAD Z 40204023        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40084009        -0.0030       -0.0030              GLOB UNIF   PPMZ3
LOAD Z 40084016        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40104011        -0.0030       -0.0030              GLOB UNIF   PPMZ3
LOAD Z 40124017        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40164019        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40174020        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40224028        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40234029        -0.0122       -0.0122              GLOB UNIF   PPMZ3
LOAD Z 40164017        -0.0091       -0.0091              GLOB UNIF   PPMZ3
LOAD Z 40224023        -0.0094       -0.0094              GLOB UNIF   PPMZ3
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LOAD Z 40184027        -0.0061       -0.0061              GLOB UNIF   PPMZ3

LOAD Z 40194022        -0.0061       -0.0061              GLOB UNIF   PPMZ3

LOAD Z 40074018        -0.0061       -0.0061              GLOB UNIF   PPMZ3

LOAD Z 40074008        -0.0039       -0.0039              GLOB UNIF   PPMZ3

LOAD Z 40084016        -0.0061       -0.0061              GLOB UNIF   PPMZ3

LOAD Z 40164019        -0.0061       -0.0061              GLOB UNIF   PPMZ3

LOAD Z 40224028        -0.0061       -0.0061              GLOB UNIF   PPMZ3

LOAD Z 40274028        -0.0069       -0.0069              GLOB UNIF   PPMZ3

LOAD Z 40184019        -0.0108       -0.0108              GLOB UNIF   PPMZ3

LOAD Z 40024003        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40094010        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40044005        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40114012        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40054006        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40134014        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40144015        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40014002        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40014007        -0.0069       -0.0069              GLOB UNIF   PPMZ3

LOAD Z 40034004        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40034010        -0.0083       -0.0083              GLOB UNIF   PPMZ3

LOAD Z 40064015        -0.0091       -0.0091              GLOB UNIF   PPMZ3

LOAD Z 40074008        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40084009        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40104011        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40124013        -0.0073       -0.0073              GLOB UNIF   PPMZ3

LOAD Z 40024009        -0.0122       -0.0122              GLOB UNIF   PPMZ3

LOAD Z 40044011        -0.0091       -0.0091              GLOB UNIF   PPMZ3

LOAD Z 40054013        -0.0152       -0.0152              GLOB UNIF   PPMZ3

LOAD Z 30133028        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 30283043        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 30433L02        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 30573058        -0.0749       -0.0749              GLOB UNIF   PPCD

LOAD Z 30583L02        -0.0749       -0.0749              GLOB UNIF   PPCD

LOAD Z 30603061        -0.0749       -0.0749              GLOB UNIF   PPCD

LOAD Z 30793105        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 31053132        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 31323153        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 31533L04        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 31733174        -0.0872       -0.0872              GLOB UNIF   PPCD
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LOAD Z 31743L04        -0.0872       -0.0872              GLOB UNIF   PPCD

LOAD Z 31763177        -0.0872       -0.0872              GLOB UNIF   PPCD

LOAD Z 3L023060        -0.0749       -0.0749              GLOB UNIF   PPCD

LOAD Z 3L023079        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 3L043176        -0.0872       -0.0872              GLOB UNIF   PPCD

LOAD Z 3L043196        -0.0469       -0.0469              GLOB UNIF   PPCD

LOAD Z 30113012        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30113026        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30123013        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30123027        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30133014        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30143015        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30143029        -0.0449       -0.0449              GLOB UNIF   PPCD

LOAD Z 30153030        -0.0224       -0.0224              GLOB UNIF   PPCD

LOAD Z 30263027        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30263041        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30273028        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30273042        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30283029        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30293030        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30293044        -0.0449       -0.0449              GLOB UNIF   PPCD

LOAD Z 30303045        -0.0224       -0.0224              GLOB UNIF   PPCD

LOAD Z 30413042        -0.0646       -0.0646              GLOB UNIF   PPCD

LOAD Z 30413057        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30423043        -0.0646       -0.0646              GLOB UNIF   PPCD

LOAD Z 30423058        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30433044        -0.0646       -0.0646              GLOB UNIF   PPCD

LOAD Z 30443045        -0.0646       -0.0646              GLOB UNIF   PPCD

LOAD Z 30443060        -0.0449       -0.0449              GLOB UNIF   PPCD

LOAD Z 30453061        -0.0224       -0.0224              GLOB UNIF   PPCD

LOAD Z 30573077        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30583078        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30603080        -0.0449       -0.0449              GLOB UNIF   PPCD

LOAD Z 30613081        -0.0224       -0.0224              GLOB UNIF   PPCD

LOAD Z 30773078        -0.0895       -0.0895              GLOB UNIF   PPCD

LOAD Z 30773085        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30783079        -0.0895       -0.0895              GLOB UNIF   PPCD

LOAD Z 30783104        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30793080        -0.0895       -0.0895              GLOB UNIF   PPCD
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LOAD Z 30803081        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30803106        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 30813107        -0.0224       -0.0224              GLOB UNIF   PPCD
LOAD Z 30853087        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30873090        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30903103        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31033104        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 3103505C        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31043105        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 31043131        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31053106        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 31063107        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 31063133        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31073134        -0.0224       -0.0224              GLOB UNIF   PPCD
LOAD Z 31313132        -0.0924       -0.0924              GLOB UNIF   PPCD
LOAD Z 31313152        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31323133        -0.0924       -0.0924              GLOB UNIF   PPCD
LOAD Z 31333134        -0.0924       -0.0924              GLOB UNIF   PPCD
LOAD Z 31333154        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31343155        -0.0224       -0.0224              GLOB UNIF   PPCD
LOAD Z 31513152        -0.0734       -0.0734              GLOB UNIF   PPCD
LOAD Z 31513173        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31523153        -0.0734       -0.0734              GLOB UNIF   PPCD
LOAD Z 31523174        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31533154        -0.0734       -0.0734              GLOB UNIF   PPCD
LOAD Z 31543155        -0.0734       -0.0734              GLOB UNIF   PPCD
LOAD Z 31543176        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31553177        -0.0224       -0.0224              GLOB UNIF   PPCD
LOAD Z 31733194        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31743181        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31763197        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31773198        -0.0224       -0.0224              GLOB UNIF   PPCD
LOAD Z 31813195        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31943195        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31953196        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31963197        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31973198        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 505C3131        -0.0924       -0.0924              GLOB UNIF   PPCD
LOAD Z 505C3151        -0.0245       -0.0245              GLOB UNIF   PPCD
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LOAD Z 30033018        -0.0449       -0.0449              GLOB UNIF   PPCD

LOAD Z 30183033        -0.0449       -0.0449              GLOB UNIF   PPCD

LOAD Z 30013002        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30013016        -0.0204       -0.0204              GLOB UNIF   PPCD

LOAD Z 30023003        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30023017        -0.0408       -0.0408              GLOB UNIF   PPCD

LOAD Z 30033004        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30043005        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30043019        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30053006        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30053020        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30063007        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30063021        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30073008        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30073022        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30083009        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30083023        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30093010        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30093024        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30103011        -0.0333       -0.0333              GLOB UNIF   PPCD

LOAD Z 30103025        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30113026        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30163017        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30163031        -0.0204       -0.0204              GLOB UNIF   PPCD

LOAD Z 30173018        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30173032        -0.0408       -0.0408              GLOB UNIF   PPCD

LOAD Z 30183019        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30193020        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30193034        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30203021        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30203035        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30213022        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30213036        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30223023        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30223037        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30233024        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30233038        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30243025        -0.0652       -0.0652              GLOB UNIF   PPCD

LOAD Z 30243039        -0.0489       -0.0489              GLOB UNIF   PPCD
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LOAD Z 30253026       -0.0652       -0.0652              GLOB UNIF   PPCD
LOAD Z 30253040       -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30263041       -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30313032       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30323033       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30333034       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30343035       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30353036       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30363037       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30373038       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30383039       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30393040       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30403041       -0.0319       -0.0319              GLOB UNIF   PPCD
LOAD Z 30333L01       -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 30463047       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30473L01       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30493050       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30503051       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30513052       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30523053       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 3L013049       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30313032       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30313046       -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 30323033       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30323047       -0.0408       -0.0408              GLOB UNIF   PPCD
LOAD Z 30333034       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30343035       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30343049       -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30353036       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30353050       -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30363037       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30363051       -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30373038       -0.0326       -0.0326              GLOB UNIF   PPCD
LOAD Z 30373052       -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30383053       -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31683169       -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31693170       -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31703171       -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31713172       -0.0573       -0.0573              GLOB UNIF   PPCD
```

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LOAD Z 31723173        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31683183        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31693179        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31703191        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31713180        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31723193        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31733194        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31793190        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31803192        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31833189        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31893190        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31903191        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31913192        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31923193        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31933194        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31673168        -0.0231       -0.0231              GLOB UNIF   PPCD
LOAD Z 31673182        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31683183        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31823183        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31823188        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31833189        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31883189        -0.0341       -0.0341              GLOB UNIF   PPCD
LOAD Z 31633164        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31643L03        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31663167        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 3L033166        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 3L033186        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31633184        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 31643185        -0.0408       -0.0408              GLOB UNIF   PPCD
LOAD Z 31663178        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31673182        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31783187        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31823188        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31843185        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31853186        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31863187        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 31873188        -0.0573       -0.0573              GLOB UNIF   PPCD
LOAD Z 30463047        -0.0423       -0.0423              GLOB UNIF   PPCD
LOAD Z 30473L01        -0.0423       -0.0423              GLOB UNIF   PPCD
```

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LOAD Z 30493050        -0.0423       -0.0423              GLOB UNIF   PPCD
LOAD Z 30683093        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 30933120        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31203144        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31443L03        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 31633164        -0.0299       -0.0299              GLOB UNIF   PPCD
LOAD Z 31643L03        -0.0299       -0.0299              GLOB UNIF   PPCD
LOAD Z 31663167        -0.0299       -0.0299              GLOB UNIF   PPCD
LOAD Z 3L013049        -0.0423       -0.0423              GLOB UNIF   PPCD
LOAD Z 3L013068        -0.0449       -0.0449              GLOB UNIF   PPCD
LOAD Z 3L033166        -0.0299       -0.0299              GLOB UNIF   PPCD
LOAD Z 30463062        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 30473067        -0.0408       -0.0408              GLOB UNIF   PPCD
LOAD Z 30493069        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30503063        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30623066        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 30633070        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30663067        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30663091        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 30673068        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30673092        -0.0408       -0.0408              GLOB UNIF   PPCD
LOAD Z 30683069        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30693070        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30693094        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30703088        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30883095        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30913092        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 30913112        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 30923093        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 30923119        -0.0408       -0.0408              GLOB UNIF   PPCD
LOAD Z 30933094        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 30943095        -0.0962       -0.0962              GLOB UNIF   PPCD
LOAD Z 30943121        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30953113        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31123118        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 3113504C        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 31183119        -0.0924       -0.0924              GLOB UNIF   PPCD
LOAD Z 31183142        -0.0204       -0.0204              GLOB UNIF   PPCD
LOAD Z 31193120        -0.0924       -0.0924              GLOB UNIF   PPCD
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LOAD Z 31193143        -0.0408       -0.0408              GLOB UNIF   PPCD

LOAD Z 31203121        -0.0924       -0.0924              GLOB UNIF   PPCD

LOAD Z 31213145        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 3121504C        -0.0924       -0.0924              GLOB UNIF   PPCD

LOAD Z 31423143        -0.0734       -0.0734              GLOB UNIF   PPCD

LOAD Z 31423161        -0.0204       -0.0204              GLOB UNIF   PPCD

LOAD Z 31433144        -0.0734       -0.0734              GLOB UNIF   PPCD

LOAD Z 31433164        -0.0408       -0.0408              GLOB UNIF   PPCD

LOAD Z 31443145        -0.0734       -0.0734              GLOB UNIF   PPCD

LOAD Z 31453146        -0.0734       -0.0734              GLOB UNIF   PPCD

LOAD Z 31453166        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 31463162        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31613163        -0.0204       -0.0204              GLOB UNIF   PPCD

LOAD Z 31623167        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 504C3146        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30553056        -0.0394       -0.0394              GLOB UNIF   PPCD

LOAD Z 30553064        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30563065        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30643065        -0.0552       -0.0552              GLOB UNIF   PPCD

LOAD Z 30643075        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30653076        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30753082        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30763083        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30823083        -0.0502       -0.0502              GLOB UNIF   PPCD

LOAD Z 30823100        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30833086        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30863089        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30893101        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31003101        -0.0344       -0.0344              GLOB UNIF   PPCD

LOAD Z 30513052        -0.0423       -0.0423              GLOB UNIF   PPCD

LOAD Z 30523053        -0.0423       -0.0423              GLOB UNIF   PPCD

LOAD Z 30533054        -0.0423       -0.0423              GLOB UNIF   PPCD

LOAD Z 30543055        -0.0423       -0.0423              GLOB UNIF   PPCD

LOAD Z 30513071        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30523072        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30533073        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 30553064        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30643075        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30713072        -0.0895       -0.0895              GLOB UNIF   PPCD
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LOAD Z 30713084        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30723073        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30723098        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30733074        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30733099        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30743075        -0.0895       -0.0895              GLOB UNIF   PPCD
LOAD Z 30753082        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30823100        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30843097        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30973098        -0.0472       -0.0472              GLOB UNIF   PPCD
LOAD Z 30983099        -0.0472       -0.0472              GLOB UNIF   PPCD
LOAD Z 30993100        -0.0472       -0.0472              GLOB UNIF   PPCD
LOAD Z 30503051        -0.0423       -0.0423              GLOB UNIF   PPCD
LOAD Z 30503063        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30513071        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30633070        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30703071        -0.0423       -0.0423              GLOB UNIF   PPCD
LOAD Z 30703088        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30713084        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30843097        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30883096        -0.0376       -0.0376              GLOB UNIF   PPCD
LOAD Z 30973098        -0.0979       -0.0979              GLOB UNIF   PPCD
LOAD Z 31243125        -0.0979       -0.0979              GLOB UNIF   PPCD
LOAD Z 30963097        -0.0979       -0.0979              GLOB UNIF   PPCD
LOAD Z 31233124        -0.0979       -0.0979              GLOB UNIF   PPCD
LOAD Z 504C3123        -0.0979       -0.0979              GLOB UNIF   PPCD
LOAD Z 30893101        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30903103        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31013115        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 3103505C        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 31153129        -0.0489       -0.0489              GLOB UNIF   PPCD
LOAD Z 30563057        -0.0423       -0.0423              GLOB UNIF   PPCD
LOAD Z 30563065        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30573077        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30653076        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30763077        -0.0715       -0.0715              GLOB UNIF   PPCD
LOAD Z 30763083        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30773085        -0.0245       -0.0245              GLOB UNIF   PPCD
LOAD Z 30833086        -0.0245       -0.0245              GLOB UNIF   PPCD
```

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LOAD Z 30853087        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30863087        -0.0424       -0.0424              GLOB UNIF   PPCD

LOAD Z 30863089        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30873090        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30893090        -0.0670       -0.0670              GLOB UNIF   PPCD

LOAD Z 30893101        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 30903103        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31013115        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 3103505C        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31153129        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 3129505C        -0.0537       -0.0537              GLOB UNIF   PPCD

LOAD Z 31003101        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 31003111        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31013115        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31113117        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31153129        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31173127        -0.0245       -0.0245              GLOB UNIF   PPCD

LOAD Z 31273128        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD Z 31283129        -0.0489       -0.0489              GLOB UNIF   PPCD

LOAD   S008     0.911007.37600-12.499                     GLOB JOIN   RISER

LOAD Z 5L025175        -0.0283       -0.0283              GLOB UNIF   PPMA2

LOAD Z 51755087        -0.0283       -0.0283              GLOB UNIF   PPMA2

LOAD Z 50605176        -0.0155       -0.0155              GLOB UNIF   PPMA2

LOAD Z 50605176        -0.0129       -0.0129              GLOB UNIF   PPMA2

LOAD Z 51765088        -0.0155       -0.0155              GLOB UNIF   PPMA2

LOAD Z 51765088        -0.0129       -0.0129              GLOB UNIF   PPMA2

LOAD Z 50615177        -0.0155       -0.0155              GLOB UNIF   PPMA2

LOAD Z 51775072        -0.0155       -0.0155              GLOB UNIF   PPMA2

*

*ELECTRICAL LOAD

LOADCN  41

LOADLB41  ELECTRICAL BULK LOAD

LOAD Z 51145124 2.58800-0.2757       -0.2757              GLOB UNIF   BB001

LOAD Z 51155125 2.58800-0.2757       -0.2757              GLOB UNIF   BB001

LOAD Z 51245133        -0.2757       -0.2757              GLOB UNIF   BB001

LOAD Z 51255134        -0.2757       -0.2757              GLOB UNIF   BB001

LOAD Z 50755092        -0.3248       -0.3248              GLOB UNIF   ELBUK

LOAD Z 50765093        -0.3249       -0.3249              GLOB UNIF   ELBUK

LOAD Z 51005114        -0.3248       -0.3248              GLOB UNIF   ELBUK
```

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LOAD Z 51015115        -0.3249       -0.3249              GLOB UNIF   ELBUK

LOAD Z 50705075        -0.3248       -0.3248              GLOB UNIF   ELBUK

LOAD Z 50925100        -0.3248       -0.3248              GLOB UNIF   ELBUK

LOAD Z 50715076        -0.3249       -0.3249              GLOB UNIF   ELBUK

LOAD Z 50935101        -0.3249       -0.3249              GLOB UNIF   ELBUK

*

*INSTRUMENT LOAD

LOADCN  46

LOADLB46  INSTRUMENT BULK LOAD

LOAD Z 50625073        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 50635074        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 50725089        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50735095        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 50745096        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 50895094        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50945099        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50955117        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 50965118        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 50995116        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 51165121        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 51175127        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 51185128        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 51215126        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50565068        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 50575069        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 50585070        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50685090        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 50695091        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 50705075        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50755092        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 50905112        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 50915113        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 50925100        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 51005114        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 51125122        -0.1198       -0.1198              GLOB UNIF   SLRPNL

LOAD Z 51135123        -0.2563       -0.2563              GLOB UNIF   SLRPNL

LOAD Z 51145124        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 30583078 1.33000-0.2400       -0.2400              GLOB UNIF   PN_002N

LOAD Z 3L023079 1.33000-0.2400       -0.2400              GLOB UNIF   PN_002N
```

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LOAD Z 30783104 0.33333-0.1550       -0.1550              GLOB UNIF   PN_001N

LOAD Z 30793105 0.33333-0.1550       -0.1550              GLOB UNIF   PN_001N

LOAD Z 31043131        -0.15503.58000-0.1550              GLOB UNIF   PN_001N

LOAD Z 31053132        -0.15503.58000-0.1550              GLOB UNIF   PN_001N

LOAD Z 50615177        -0.1365       -0.1365              GLOB UNIF   SLRPNL

LOAD Z 51775072        -0.1365       -0.1365              GLOB UNIF   SLRPNL

*

*SAFETY EQUIPMENT LOAD

LOADCN  51

LOADLB51  SAFETY BULK LOAD

LOAD   5014                  -1.1030                      GLOB JOIN   NA2

*

*LIVE LOAD 300PSF AND LAY DOWN AREA 400PSF

LOADCN  56

LOADLB56  LIVE LOAD AND LAY DOWN AREA

LOAD Z 3L033186 3.02000-0.8250       -0.8250              GLOB UNIF   UDL300

LOAD Z 3L043196 3.02000-0.8625       -0.8625              GLOB UNIF   UDL300

LOAD Z 31633184 3.02000-0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 31643185 3.02000-0.7500       -0.7500              GLOB UNIF   UDL300

LOAD Z 31703191 3.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31723193 3.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31733194 3.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31763197 3.02000-0.8250       -0.8250              GLOB UNIF   UDL300

LOAD Z 31773198 3.02000-0.4125       -0.4125              GLOB UNIF   UDL300

LOAD Z 31783187 1.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31793190 1.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31803192 1.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31813195 1.02000-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31823188 0.18700-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 31833189 0.18700-0.9000       -0.9000              GLOB UNIF   UDL300

LOAD Z 30183033        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 30333L01        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 30683093        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 30933120        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 31203144        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 31443L03        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 3L013068        -0.3750       -0.3750              GLOB UNIF   UDL300

LOAD Z 3L033186        -0.37503.02000-0.3750              GLOB UNIF   UDL300

LOAD Z 30163031        -0.3750       -0.3750              GLOB UNIF   UDL300
```

```
LOAD Z 30173032        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 30313046        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 30323047        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 30463062        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 30473067        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 30623066        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 30663091        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 30673092        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 30913112        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 30923119        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 31123118        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 31183142        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 31193143        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 31423161        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 31433164        -0.7500       -0.7500              GLOB UNIF   UDL300
LOAD Z 31613163        -0.3750       -0.3750              GLOB UNIF   UDL300
LOAD Z 31633184        -0.37503.02000-0.3750              GLOB UNIF   UDL300
LOAD Z 31643185        -0.75003.02000-0.7500              GLOB UNIF   UDL300
LOAD Z 30183033        -0.4500       -0.4500              GLOB UNIF   UDL300
LOAD Z 30283043        -0.8625       -0.8625              GLOB UNIF   UDL300
LOAD Z 30193034        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30203035        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30213036        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30223037        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30233038        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30243039        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30253040        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30263041        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30273042        -0.9000       -0.9000              GLOB UNIF   UDL300
LOAD Z 30293044        -0.8250       -0.8250              GLOB UNIF   UDL300
LOAD Z 30303045        -0.4125       -0.4125              GLOB UNIF   UDL300
LOAD Z 30133028        -0.4125       -0.4125              GLOB UNIF   UDL300
LOAD Z 30143029        -0.8250       -0.8250              GLOB UNIF   UDL300
LOAD Z 30153030        -0.4125       -0.4125              GLOB UNIF   UDL300
LOAD Z 20342039        -0.2750       -0.2750              GLOB UNIF   UDL100
LOAD Z 20352040        -0.5959       -0.5959              GLOB UNIF   UDL100
LOAD Z 20372042        -0.3208       -0.3208              GLOB UNIF   UDL100
LOAD Z 20132020        -0.1406       -0.1406              GLOB UNIF   UDL100
LOAD Z 20142021        -0.2750       -0.2750              GLOB UNIF   UDL100
```

```
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LOAD Z 20162023        -0.3208       -0.3208              GLOB UNIF   UDL100

LOAD Z 20182024        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 20192025        -0.1041       -0.1041              GLOB UNIF   UDL100

LOAD Z 20202027        -0.1406       -0.1406              GLOB UNIF   UDL100

LOAD Z 20212028        -0.2750       -0.2750              GLOB UNIF   UDL100

LOAD Z 20222029        -0.2593       -0.2593              GLOB UNIF   UDL100

LOAD Z 20232030        -0.3208       -0.3208              GLOB UNIF   UDL100

LOAD Z 20242032        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 20252026        -0.1041       -0.1041              GLOB UNIF   UDL100

LOAD Z 20262033        -0.1041       -0.1041              GLOB UNIF   UDL100

LOAD Z 20272034        -0.1406       -0.1406              GLOB UNIF   UDL100

LOAD Z 20292035        -0.2593       -0.2593              GLOB UNIF   UDL100

LOAD Z 20322037        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 20332038        -0.1041       -0.1041              GLOB UNIF   UDL100

LOAD Z 20082013        -0.1407       -0.1407              GLOB UNIF   UDL100

LOAD Z 20092014        -0.2750       -0.2750              GLOB UNIF   UDL100

LOAD Z 20102015        -0.2593       -0.2593              GLOB UNIF   UDL100

LOAD Z 20112016        -0.2750       -0.2750              GLOB UNIF   UDL100

LOAD Z 20122017        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20012005        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20022006        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20052011        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20062012        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20022006        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20032007        -0.1500       -0.1500              GLOB UNIF   UDL100

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LOAD Z 20072019        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 20122017        -0.1500       -0.1500              GLOB UNIF   UDL100

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LOAD Z 40514058        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40294034        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40314043        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40324044        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40344036        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40364041        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40414047        -0.1500       -0.1500              GLOB UNIF   UDL100

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LOAD Z 40444052        -0.1500       -0.1500              GLOB UNIF   UDL100
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LOAD Z 40484051       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40504054       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40544057       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40574060       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40584065       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40604064       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40644068       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40654075       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40664076       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40684073       -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40304042       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40194022       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40204023       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40084016       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40124017       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40164019       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40174020       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40224028       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40234029       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40284033       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40294034       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40334035       -0.3000       -0.3000              GLOB UNIF   UDL100

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LOAD Z 40354040       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40364041       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40404046       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40414047       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40464049       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40474050       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40494053       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40504054       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40534056       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40544057       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40564059       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40574060       -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40594063       -0.3000       -0.3000              GLOB UNIF   UDL100

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LOAD Z 40634067       -0.3000       -0.3000              GLOB UNIF   UDL100
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LOAD Z 40684073        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40724077        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40734079        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40734079        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40744088        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40794087        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40814082        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40774081        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40784083        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40794087        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40824085        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40834086        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40804084        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40814082        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40714080        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40724077        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40774081        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40824085        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40384045        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40404046        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40454055        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40464049        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40494053        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40534056        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40554062        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40564059        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40594063        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40624070        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40634067        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40674072        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40244037        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40254038        -0.2792       -0.2792              GLOB UNIF   UDL100

LOAD Z 40284033        -0.1708       -0.1708              GLOB UNIF   UDL100

LOAD Z 40334035        -0.1708       -0.1708              GLOB UNIF   UDL100

LOAD Z 40354040        -0.1708       -0.1708              GLOB UNIF   UDL100

LOAD Z 40264039        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40374061        -0.1500       -0.1500              GLOB UNIF   UDL100
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LOAD Z 40454055        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40554062        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40614069        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40624070        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40184027        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40194022        -0.1500       -0.1500              GLOB UNIF   UDL100

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LOAD Z 40084016        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40164019        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40224028        -0.1500       -0.1500              GLOB UNIF   UDL100

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LOAD Z 40214030        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40204023        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40124017        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40154031        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40174020        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40234029        -0.1500       -0.1500              GLOB UNIF   UDL100

LOAD Z 40014007        -0.1708       -0.1708              GLOB UNIF   UDL100

LOAD Z 40034010        -0.2042       -0.2042              GLOB UNIF   UDL100

LOAD Z 40064015        -0.2250       -0.2250              GLOB UNIF   UDL100

LOAD Z 40024009        -0.3000       -0.3000              GLOB UNIF   UDL100

LOAD Z 40044011        -0.2250       -0.2250              GLOB UNIF   UDL100

LOAD Z 40054013        -0.3750       -0.3750              GLOB UNIF   UDL100

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LOAD Z 50235039        -0.16412.00000-0.1641              GLOB UNIF   UDL100

LOAD Z 50155023 0.50000-0.0820       -0.0820              GLOB UNIF   UDL50

LOAD Z 50235039        -0.08202.00000-0.0820              GLOB UNIF   UDL50

LOAD Z V006V007 0.50000-0.19674.00000-0.1967              GLOB UNIF   UDL50

LOAD Z V009V010 0.40008-0.22964.00000-0.2296              GLOB UNIF   UDL50

LOAD Z V012V013 0.30008-0.22974.00000-0.2297              GLOB UNIF   UDL50

LOAD Z V015V016 0.20008-0.22974.00000-0.2297              GLOB UNIF   UDL50

LOAD Z V018V019 0.10000-0.22974.00000-0.2297              GLOB UNIF   UDL50

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LOAD Z 51215126        -0.2250       -0.2250              GLOB UNIF   UD300

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LOAD Z 51325144        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51455173        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51465174        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51595172        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 5L045143        -0.9008       -0.9008              GLOB UNIF   UD300
LOAD Z 5L045159        -0.1875       -0.1875              GLOB UNIF   UD300
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LOAD Z 51435145        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 51455173        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 51725173        -0.5257       -0.5257              GLOB UNIF   UD300
LOAD Z 50515052        -0.8235       -0.8235              GLOB UNIF   UD300
LOAD Z 50525L02        -0.8235       -0.8235              GLOB UNIF   UD300
LOAD Z 50875097        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 50975111        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51115119        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51195L04        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51575158        -0.5257       -0.5257              GLOB UNIF   UD300
LOAD Z 51585159        -0.5257       -0.5257              GLOB UNIF   UD300
LOAD Z 51595172        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 5L045159        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 50515085        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51425L04        -0.9110       -0.9110              GLOB UNIF   UD300
LOAD Z 51575170        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51715172        -0.2898       -0.2898              GLOB UNIF   UD300
LOAD Z 51555156        -0.5257       -0.5257              GLOB UNIF   UD300
LOAD Z 51565157        -0.5257       -0.5257              GLOB UNIF   UD300
LOAD Z 51395140        -0.2360       -0.2360              GLOB UNIF   UD300
LOAD Z 51395155        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51405141        -0.2360       -0.2360              GLOB UNIF   UD300
LOAD Z 51405156        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51415157        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51555168        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51565169        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51575170        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51685169        -0.2898       -0.2898              GLOB UNIF   UD300
LOAD Z 51695170        -0.2898       -0.2898              GLOB UNIF   UD300
LOAD Z 51535154        -0.2898       -0.2898              GLOB UNIF   UD300
LOAD Z 51545155        -0.2898       -0.2898              GLOB UNIF   UD300
LOAD Z 51535166        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51675168        -0.2898       -0.2898              GLOB UNIF   UD300
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LOAD Z 51495162        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51515152        -0.5257       -0.5257              GLOB UNIF   UD300
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LOAD Z 51365151        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51375138        -0.2360       -0.2360              GLOB UNIF   UD300
LOAD Z 51375152        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51385153        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51505163        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51515164        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51525165        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51535166        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 51655166        -0.2898       -0.2898              GLOB UNIF   UD300

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LOAD Z 51345L03        -0.5258       -0.5258              GLOB UNIF   UD300

LOAD Z 51495162        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 5L035149        -0.1875       -0.1875              GLOB UNIF   UD300

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LOAD Z 51615162        -0.5258       -0.5258              GLOB UNIF   UD300

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LOAD Z 50665067        -0.3017       -0.3017              GLOB UNIF   UD300

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LOAD Z 50835084        -0.3016       -0.3016              GLOB UNIF   UD300

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LOAD Z 50505065        -0.2250       -0.2250              GLOB UNIF   UD300

LOAD Z 50645065        -0.3469       -0.3469              GLOB UNIF   UD300

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LOAD Z 50455046        -0.8235       -0.8235              GLOB UNIF   UD300

LOAD Z 50465047        -0.8235       -0.8235              GLOB UNIF   UD300
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LOAD Z 50455079        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50465080        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50475081        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50485082        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50495064        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 50665083        -0.2250       -0.2250              GLOB UNIF   UD300
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LOAD Z 50795080        -0.8235       -0.8235              GLOB UNIF   UD300
LOAD Z 50805081        -0.8235       -0.8235              GLOB UNIF   UD300
LOAD Z 50815082        -0.8235       -0.8235              GLOB UNIF   UD300
LOAD Z 50825083        -0.8235       -0.8235              GLOB UNIF   UD300
LOAD Z 50415L01        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 50425043        -0.2625       -0.2625              GLOB UNIF   UD300
LOAD Z 50435L01        -0.2625       -0.2625              GLOB UNIF   UD300
LOAD Z 50395042        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 50405043        -0.3750       -0.3750              GLOB UNIF   UD300
LOAD Z 50395040        -0.2625       -0.2625              GLOB UNIF   UD300
LOAD Z 50405041        -0.2625       -0.2625              GLOB UNIF   UD300
LOAD Z 50255041        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 50415L01        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 50445045        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50455046        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50465047        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 5L015044        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50255026        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50265027        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50265044        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50275028        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50275045        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50285029        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50285046        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50295047        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 50475048        -0.6000       -0.6000              GLOB UNIF   UD300
LOAD Z 50485049        -0.6000       -0.6000              GLOB UNIF   UD300
LOAD Z 50495050        -0.6000       -0.6000              GLOB UNIF   UD300
```

```
LOAD Z 50505051        -0.6000       -0.6000              GLOB UNIF   UD300

LOAD Z 50295047 1.99997-0.2250       -0.2250              GLOB UNIF   UD300

LOAD Z 50305048 1.99998-0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50315049 1.99999-0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50325050 1.99999-0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50335051 2.00000-0.2250       -0.2250              GLOB UNIF   UD300

LOAD Z 50355L02        -0.4125       -0.4125              GLOB UNIF   UD300

LOAD Z 50515052        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50525L02        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 5L025053        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50335034        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50335051        -0.2250       -0.2250              GLOB UNIF   UD300

LOAD Z 50345035        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50345052        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50355036        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50365053        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50185025        -0.2250       -0.2250              GLOB UNIF   UD300

LOAD Z 50185019        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50195020        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50195026        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50205021        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50205027        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50215022        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50215028        -0.4500       -0.4500              GLOB UNIF   UD300

LOAD Z 50225029        -0.2250       -0.2250              GLOB UNIF   UD300

LOAD Z 50255026        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50265027        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50275028        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50285029        -0.1344       -0.1344              GLOB UNIF   UD300

LOAD Z 50045017        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50175018        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50185025        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50255041        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50025003        -0.2625       -0.2625              GLOB UNIF   UD300

LOAD Z 50025015        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50035004        -0.2625       -0.2625              GLOB UNIF   UD300

LOAD Z 50035016        -0.3750       -0.3750              GLOB UNIF   UD300

LOAD Z 50155023        -0.1875       -0.1875              GLOB UNIF   UD300

LOAD Z 50165024        -0.3750       -0.3750              GLOB UNIF   UD300
```

```
LOAD Z 50235024        -0.3750       -0.3750              GLOB UNIF   UD300
LOAD Z 50235039        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 50245025        -0.3750       -0.3750              GLOB UNIF   UD300
LOAD Z 50245040        -0.3750       -0.3750              GLOB UNIF   UD300
LOAD Z 50155016        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50165017        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50395040        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 50405041        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 50775102        -0.4125       -0.4125              GLOB UNIF   UD300
LOAD Z 50765077        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50765093        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 50775078        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50785079        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50785103        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50795080        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50795104        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50805081        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50805105        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 50815106        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 50935101        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 51015102        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51025103        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51035104        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51045105        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51055106        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51025L03        -0.4125       -0.4125              GLOB UNIF   UD300
LOAD Z 51345L03        -0.6750       -0.6750              GLOB UNIF   UD300
LOAD Z 51015102        -0.6750       -0.6750              GLOB UNIF   UD300
LOAD Z 51015115        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 51025103        -0.6750       -0.6750              GLOB UNIF   UD300
LOAD Z 51035104        -0.6750       -0.6750              GLOB UNIF   UD300
LOAD Z 51035135        -0.4500       -0.4500              GLOB UNIF   UD300
LOAD Z 51045136        -0.2250       -0.2250              GLOB UNIF   UD300
LOAD Z 51155125        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 51255134        -0.1875       -0.1875              GLOB UNIF   UD300
LOAD Z 51355136        -0.6750       -0.6750              GLOB UNIF   UD300
LOAD Z 5L035135        -0.6750       -0.6750              GLOB UNIF   UD300
*
***LDS1**      3.000    -4.000    63.000     9.000    -4.000    63.000     3.000
```

```
***LDS2**      5.830    63.000     9.000     5.830    63.000    -0.100    -0.100

***LDS3**      2.000  50   1   3   0   156    -2EQUPPRESLAYDO_N1

LOAD Z 50835084        -0.4490       -0.4490               GLOB UNIF   LAYDO_N1

LOAD Z 50845085        -0.4490       -0.4490               GLOB UNIF   LAYDO_N1

LOAD Z 51075108        -0.4490       -0.4490               GLOB UNIF   LAYDO_N1

LOAD Z 51085109        -0.4490       -0.4490               GLOB UNIF   LAYDO_N1

*

***LDS1**     -9.000    -4.000    63.000    -3.000    -4.000    63.000    -9.000

***LDS2**      5.830    63.000    -3.000     5.830    63.000    -0.100    -0.100

***LDS3**      1.000  50   1   3   0   156    -2EQUPPRESLAYDO_N2

LOAD Z 50795080        -0.4490       -0.4490               GLOB UNIF   LAYDO_N2

LOAD Z 50805081        -0.4490       -0.4490               GLOB UNIF   LAYDO_N2

LOAD Z 51045105        -0.4490       -0.4490               GLOB UNIF   LAYDO_N2

LOAD Z 51055106        -0.4490       -0.4490               GLOB UNIF   LAYDO_N2

*

***LDS1**     -6.000   -12.990    63.000            -12.990    63.000    -6.000

***LDS2**     -2.010    63.000             -2.010    63.000    -0.100    -0.100

***LDS3**      2.000  50   1   3   0   156    -2EQUPPRESLAYDO_N3

LOAD Z 50465047        -0.5490       -0.5490               GLOB UNIF   LAYDO_N3

LOAD Z 50475048        -0.1960       -0.5490               GLOB UNIF   LAYDO_N3

LOAD Z 50805081        -0.5490       -0.5490               GLOB UNIF   LAYDO_N3

LOAD Z 50815082        -0.5490       -0.5490               GLOB UNIF   LAYDO_N3

*

***LDS1**     -6.000   -20.907    38.000    -6.000   -20.907    38.000

***LDS2**              -24.320                                   6.500     5.000

***LDS3**      1.000   1   2   2   0   056    -1EQUPSKIDDOG_HN  X

LOAD Z 30053020 1.58300-4.0533                              GLOB CONC   DOG_HN

LOAD Z 30063021 1.58300-4.0533                              GLOB CONC   DOG_HN

LOAD Z 30073022 1.58300-4.0534                              GLOB CONC   DOG_HN

LOAD Z 30203035 2.50000-4.0533                              GLOB CONC   DOG_HN

LOAD Z 30213036 2.50000-4.0533                              GLOB CONC   DOG_HN

LOAD Z 30223037 2.50000-4.0534                              GLOB CONC   DOG_HN

*

***LDS1**     15.500    11.500    38.000    20.000    11.500    38.000    15.500

***LDS2**     11.500    38.000    20.000    11.500    38.000     0.400     0.400

***LDS3**      5.000  50   1   3   0   156    -2EQUPPRESLAY_CD

LOAD Z 31533154 0.50000-1.8000       -1.8000               GLOB UNIF   LAY_CD

LOAD Z 31543155        -1.80002.25008-1.8000               GLOB UNIF   LAY_CD

LOAD Z 5L025175        -0.2250       -0.2250               GLOB UNIF   UD300
```

```
LOAD Z 51755087        -0.2250       -0.2250               GLOB UNIF   UD300

LOAD Z 50985120        -0.2250       -0.2250               GLOB UNIF   UD300

LOAD Z 50985120 2.56700-0.22502.93300-0.2250               GLOB UNIF   UD300

LOAD Z 50985120        -0.1875       -0.1875               GLOB UNIF   UD300

LOAD Z 50985120 2.56700-0.18752.93300-0.1875               GLOB UNIF   UD300

LOADCN  57

LOAD X P110P117 3.330005.00000                             GLOB CONC   IMPACT

LOAD X P109P116 3.330005.00000                             GLOB CONC   IMPACT

LOAD X P108P115 3.330005.00000                             GLOB CONC   IMPACT

LOAD X P107P114 3.330005.00000                             GLOB CONC   IMPACT

LOAD X P106P113 3.330005.00000                             GLOB CONC   IMPACT

END
```

B.2 Seastate Model Input (Superelement)

```
LDOPT SF    NF+Z64.20000490.0000  -62.00   62.00GLOBEN       FLDCMBMPTNP      K

LCSEL           3101 3102 3103 3104

FILE B

*

LOAD

*

*STRUCTURAL SELFWEIGHT - SACS GENERATED LOAD

LOADCN   6

LOADLB6   SELFWEIGHT MSL-WD (FATIGUE)

DEAD

DEAD      -Z          62.000 -62.000  64.200M

*

*ENVIROMENTAL LOAD DATA BASED ON A.H GLENN 5o 54' 45"S, 107o 29'06"E

*

LOADCN 281

LOADLB 281COD Wave 0 Deg - MSL WD

WAVE

WAVE1.00STRE 5.992        5.17                   D          5.0  72MM10 1 1 3

LOADCN 282

LOADLB 282COD WAVE 90 DEG - MSL WD

WAVE

WAVE1.00STRE 5.992        5.17        90.000     D          5.0  72MM10 1 1 3

LOADCN 283

LOADLB 283COD WAVE 180 DEG - MSL WD
```

```
WAVE
WAVE1.00STRE 5.992        5.17        180.00      D          5.0  72MM10 1 1 3
LOADCN 284
LOADLB 284COD Wave 270 Deg - MSL WD
WAVE
WAVE1.00STRE 5.992        5.17        270.00      D          5.0  72MM10 1 1 3



LCOMB
*
*GRAVITY LOAD
LCOMB C100    61.1500  211.2000  261.2000  311.2000  361.4400  411.2500
LCOMB C100   461.2500  511.2500  561.0000
*
*GRAVITY LOAD INCLUDING ENVIRONMENTAL LOAD 1 YEAR MIN WD
LCOMB 3101 C1001.0000 2811.0000
LCOMB 3102 C1001.0000 2821.0000
LCOMB 3103 C1001.0000 2831.0000
LCOMB 3104 C1001.0000 2841.0000
END
END
```

B.3 PSI Model Input

```
YY PLATFORM TRIPOD DEVELOPMENT
PSIOPT +ZENG          SM    0.01   0.001999                  100     1.0   490.0
PLGRUP
*** PILE GROUP ***
PLGRUP PL1            36. 1.500  29.0  11.6   36.     50.
PLGRUP PL1            36.   1.0  29.0  11.6   36.    200.                 7.0686
*
*PLGRUP PL2            36.   1.0  29.0  11.6   50.      5.
*PLGRUP PL2            36.   1.5  29.0  11.6   50.    200.
*PLGRUP PL2            36.   1.0  29.0  11.6   50.     95.                 4.908
*
*PLGRUP CD1            30.    1.  29.0  11.6   36.    100.                 4.908
*** PILE ***
PILE
```

```
*** PILE
PILE  101P201P PL1                                                    SOL  SOL
PILE  102P202P PL1                                                    SOL  SOL
PILE  103P203P PL1                                                    SOL  SOL
**** CONDUCTOR
*PILE  102C202C CD1                                                    SOL  SOL
*PILE  103C203C CD1                                                    SOL  SOL
*PILE  104C204C CD1                                                    SOL  SOL
*PILE  105C205C CD1                                                    SOL  SOL
********************************************************************************
** SOIL DATA FOR PILE ********************************************************
********************************************************************************
*** T-Z CURVE ***
**COMPRESSION**
* T-Z friction data: T data is available in kN/m, need divided by pile circumfer
*                    Circum = pi*D = 3.14*0.9144 = 2.87m
*                    kPa to ksi = 1.45e-4
*                    Shallow gas contingency factor = 0.9
*                    T factor = 1.45e-4 / 2.87 * 0.9 = .45e-4
*                    mm to in
*                    Z factor = 0.03937
SOIL TZAXIAL HEAD 40  8           .03937 SOL
SOIL T-Z     SLOCSM   8   0.00        .45e-4
SOIL         T-Z   0.00  0.00  0.00  1.46  0.00  2.83  0.00  5.21  0.00  7.32
SOIL         T-Z   0.00  9.14  0.00 18.29  0.00 45.72
SOIL T-Z     SLOCSM   8   0.66        .45e-4
SOIL         T-Z   0.00  0.00  8.79  1.46 14.65  2.83 21.98  5.21 26.37  7.32
SOIL         T-Z  29.30  9.14 26.37 18.29 26.37 45.72
SOIL T-Z     SLOCSM   8   0.67        .45e-4
SOIL         T-Z   0.00  0.00  8.79  1.46 14.65  2.83 21.98  5.21 26.37  7.32
SOIL         T-Z  29.30  9.14 26.37 18.29 26.37 45.72
SOIL T-Z     SLOCSM   8  10.50        .45e-4
SOIL         T-Z   0.00  0.00 26.28  1.46 43.81  2.83 65.71  5.21 78.85  7.32
SOIL         T-Z  87.62  9.14 78.85 18.29 78.85 45.72
SOIL T-Z     SLOCSM   8  10.51        .45e-4
SOIL         T-Z   0.00  0.00 26.28  1.46 43.81  2.83 65.71  5.21 78.85  7.32
SOIL         T-Z  87.62  9.14 78.85 18.29 78.85 45.72
SOIL T-Z     SLOCSM   8  20.67        .45e-4
SOIL         T-Z   0.00  0.00 31.11  1.46 51.85  2.83 77.78  5.21 93.33  7.32
```

```
SOIL         T-Z 103.70  9.14 93.33 18.29 93.33 45.72
SOIL T-Z     SLOCSM   8  20.68        .45e-4
SOIL         T-Z   0.00  0.00 40.25  1.46 67.08  2.83100.62  5.21120.74  7.32
SOIL         T-Z 134.15  9.14120.74 18.29120.74 45.72
SOIL T-Z     SLOCSM   8  31.17        .45e-4
SOIL         T-Z   0.00  0.00 44.64  1.46 74.40  2.83111.60  5.21133.92  7.32
SOIL         T-Z 148.80  9.14133.92 18.29133.92 45.72
SOIL T-Z     SLOCSM   8  31.18        .45e-4
SOIL         T-Z   0.00  0.00 32.92  1.46 54.87  2.83 82.30  5.21 98.76  7.32
SOIL         T-Z 109.74  9.14 98.76 18.29 98.76 45.72
SOIL T-Z     SLOCSM   8  43.31        .45e-4
SOIL         T-Z   0.00  0.00 37.40  1.46 62.34  2.83 93.51  5.21112.21  7.32
SOIL         T-Z 124.67  9.14112.21 18.29112.21 45.72
SOIL T-Z     SLOCSM   8  43.32        .45e-4
SOIL         T-Z   0.00  0.00 68.69  1.46114.48  2.83171.71  5.21206.06  7.32
SOIL         T-Z 228.95  9.14206.06 18.29206.06 45.72
SOIL T-Z     SLOCSM   8  52.82        .45e-4
SOIL         T-Z   0.00  0.00 72.13  1.46120.22  2.83180.33  5.21216.40  7.32
SOIL         T-Z 240.44  9.14216.40 18.29216.40 45.72
SOIL T-Z     SLOCSM   8  52.83        .45e-4
SOIL         T-Z   0.00  0.00 47.23  1.46 78.71  2.83118.07  5.21141.68  7.32
SOIL         T-Z 157.42  9.14141.68 18.29141.68 45.72
SOIL T-Z     SLOCSM   8  68.90        .45e-4
SOIL         T-Z   0.00  0.00 65.93  1.46109.88  2.83164.82  5.21197.78  7.32
SOIL         T-Z 219.76  9.14197.78 18.29197.78 45.72
SOIL T-Z     SLOCSM   8  68.91        .45e-4
SOIL         T-Z   0.00  0.00 85.49  1.46142.48  2.83213.73  5.21256.47  7.32
SOIL         T-Z 284.97  9.14256.47 18.29256.47 45.72
SOIL T-Z     SLOCSM   8  79.07        .45e-4
SOIL         T-Z   0.00  0.00 88.94  1.46148.23  2.83222.34  5.21266.81  7.32
SOIL         T-Z 296.46  9.14266.81 18.29266.81 45.72
SOIL T-Z     SLOCSM   8  79.08        .45e-4
SOIL         T-Z   0.00  0.00 66.36  1.46110.60  2.83165.90  5.21199.08  7.32
SOIL         T-Z 221.20  9.14199.08 18.29199.08 45.72
SOIL T-Z     SLOCSM   8 116.47        .45e-4
SOIL         T-Z   0.00  0.00 90.14  1.46150.24  2.83225.36  5.21270.43  7.32
SOIL         T-Z 300.48  9.14270.43 18.29270.43 45.72
SOIL T-Z     SLOCSM   8 116.48        .45e-4
SOIL         T-Z   0.00  0.00110.48  1.46184.14  2.83276.21  5.21331.45  7.32
```

```
SOIL         T-Z 368.28  9.14331.45 18.29331.45 45.72

SOIL T-Z     SLOCSM   8 122.38        .45e-4

SOIL         T-Z   0.00  0.00113.33  1.46188.88  2.83283.32  5.21339.98  7.32

SOIL         T-Z 377.76  9.14339.98 18.29339.98 45.72

SOIL T-Z     SLOCSM   8 122.39        .45e-4

SOIL         T-Z   0.00  0.00 86.52  1.46144.21  2.83216.31  5.21259.57  7.32

SOIL         T-Z 288.42  9.14259.57 18.29259.57 45.72

SOIL T-Z     SLOCSM   8 131.23        .45e-4

SOIL         T-Z   0.00  0.00 95.75  1.46159.58  2.83239.37  5.21287.24  7.32

SOIL         T-Z 319.15  9.14287.24 18.29287.24 45.72

SOIL T-Z     SLOCSM   8 131.24        .45e-4

SOIL         T-Z   0.00  0.00 84.63  1.46141.05  2.83211.57  5.21253.89  7.32

SOIL         T-Z 282.10  9.14253.89 18.29253.89 45.72

SOIL T-Z     SLOCSM   8 147.97        .45e-4

SOIL         T-Z   0.00  0.00 96.61  1.46161.01  2.83241.52  5.21289.82  7.32

SOIL         T-Z 322.03  9.14289.82 18.29289.82 45.72

SOIL T-Z     SLOCSM   8 147.98        .45e-4

SOIL         T-Z   0.00  0.00232.69  2.54232.69  5.08232.69 12.70232.69 25.40

SOIL         T-Z 232.69 50.80232.69127.00232.69254.00

SOIL T-Z     SLOCSM   8 157.48        .45e-4

SOIL         T-Z   0.00  0.00232.69  2.54232.69  5.08232.69 12.70232.69 25.40

SOIL         T-Z 232.69 50.80232.69127.00232.69254.00

SOIL T-Z     SLOCSM   8 157.49        .45e-4

SOIL         T-Z   0.00  0.00 86.96  1.46144.93  2.83217.39  5.21260.87  7.32

SOIL         T-Z 289.85  9.14260.87 18.29260.87 45.72

SOIL T-Z     SLOCSM   8 164.04        .45e-4

SOIL         T-Z   0.00  0.00 96.52  1.46160.87  2.83241.30  5.21289.57  7.32

SOIL         T-Z 321.74  9.14289.57 18.29289.57 45.72

SOIL T-Z     SLOCSM   8 164.05        .45e-4

SOIL         T-Z   0.00  0.00275.78  2.54275.78  5.08275.78 12.70275.78 25.40

SOIL         T-Z 275.78 50.80275.78127.00275.78254.00

SOIL T-Z     SLOCSM   8 171.26        .45e-4

SOIL         T-Z   0.00  0.00275.78  2.54275.78  5.08275.78 12.70275.78 25.40

SOIL         T-Z 275.78 50.80275.78127.00275.78254.00

SOIL T-Z     SLOCSM   8 171.27        .45e-4

SOIL         T-Z   0.00  0.00132.72  1.46221.20  2.83331.79  5.21398.15  7.32

SOIL         T-Z 442.39  9.14398.15 18.29398.15 45.72

SOIL T-Z     SLOCSM   8 177.82        .45e-4

SOIL         T-Z   0.00  0.00135.30  1.46225.50  2.83338.26  5.21405.91  7.32
```

```
SOIL         T-Z 451.01  9.14405.91 18.29405.91 45.72

SOIL T-Z     SLOCSM   8 177.83        .45e-4

SOIL         T-Z   0.00  0.00115.05  1.46191.75  2.83287.63  5.21345.15  7.32

SOIL         T-Z 383.50  9.14345.15 18.29345.15 45.72

SOIL T-Z     SLOCSM   8 192.26        .45e-4

SOIL         T-Z   0.00  0.00125.39  1.46208.99  2.83313.48  5.21376.18  7.32

SOIL         T-Z 417.97  9.14376.18 18.29376.18 45.72

SOIL T-Z     SLOCSM   8 192.27        .45e-4

SOIL         T-Z   0.00  0.00275.78  2.54275.78  5.08275.78 12.70275.78 25.40

SOIL         T-Z 275.78 50.80275.78127.00275.78254.00

SOIL T-Z     SLOCSM   8 202.43        .45e-4

SOIL         T-Z   0.00  0.00275.78  2.54275.78  5.08275.78 12.70275.78 25.40

SOIL         T-Z 275.78 50.80275.78127.00275.78254.00

SOIL T-Z     SLOCSM   8 202.44        .45e-4

SOIL         T-Z   0.00  0.00121.00  1.46201.66  2.83302.49  5.21362.99  7.32

SOIL         T-Z 403.32  9.14362.99 18.29362.99 45.72

SOIL T-Z     SLOCSM   8 210.63        .45e-4

SOIL         T-Z   0.00  0.00123.20  1.46205.34  2.83308.01  5.21369.61  7.32

SOIL         T-Z 410.67  9.14369.61 18.29369.61 45.72

SOIL T-Z     SLOCSM   8 210.64        .45e-4

SOIL         T-Z   0.00  0.00 94.80  1.46158.00  2.83237.00  5.21284.39  7.32

SOIL         T-Z 315.99  9.14284.39 18.29284.39 45.72

SOIL T-Z     SLOCSM   8 229.66        .45e-4

SOIL         T-Z   0.00  0.00114.96  1.46191.61  2.83287.41  5.21344.89  7.32

SOIL         T-Z 383.21  9.14344.89 18.29344.89 45.72

*

*

* Q-Z friction data: Q data is available in kN, need divided by pile cross secti

*                   Area = pi/4*D^2 = 3.14/4*(0.9144^2-(0.9144-2*0.0254)^2) = 0

*                   kPa to ksi = 1.45e-4

*                   Shallow gas contingency factor = 0.9

*                   T factor = 1.45e-4 / 0.071 * 0.9 = 1.84e-3

*                   mm to in

*                   Z factor = 0.03937

SOIL BEARING HEAD 40  7          0.03937 SOL

SOIL BEAR    SLOC     7   0.00        .18E-2

SOIL         T-Z  22.16  1.83 44.33 11.89 59.40 22.86 66.49 38.40 79.79 66.75

SOIL         T-Z  88.65 91.44 88.65457.20

SOIL BEAR    SLOC     7   0.66        .18E-2
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SOIL         T-Z  73.88  1.83147.76 11.89197.99 22.86221.63 38.40265.96 66.75

SOIL         T-Z 295.51 91.44295.51457.20

SOIL BEAR    SLOC     7   0.67        .18E-2

SOIL         T-Z  73.88  1.83147.76 11.89197.99 22.86221.63 38.40265.96 66.75

SOIL         T-Z 295.51 91.44295.51457.20

SOIL BEAR    SLOC     7  10.50        .18E-2

SOIL         T-Z 125.59  1.83251.19 11.89336.59 22.86376.78 38.40452.13 66.75

SOIL         T-Z 502.37 91.44502.37457.20

SOIL BEAR    SLOC     7  10.51        .18E-2

SOIL         T-Z 125.59  1.83251.19 11.89336.59 22.86376.78 38.40452.13 66.75

SOIL         T-Z 502.37 91.44502.37457.20

SOIL BEAR    SLOC     7  20.67        .18E-2

SOIL         T-Z 125.59  1.83251.19 11.89336.59 22.86376.78 38.40452.13 66.75

SOIL         T-Z 502.37 91.44502.37457.20

SOIL BEAR    SLOC     7  20.68        .18E-2

SOIL         T-Z 177.31  1.83354.61 11.89475.18 22.86531.92 38.40638.31 66.75

SOIL         T-Z 709.23 91.44709.23457.20

SOIL BEAR    SLOC     7  31.17        .18E-2

SOIL         T-Z 177.31  1.83354.61 11.89475.18 22.86531.92 38.40638.31 66.75

SOIL         T-Z 709.23 91.44709.23457.20

SOIL BEAR    SLOC     7  31.18        .18E-2

SOIL         T-Z 118.20  1.83236.41 11.89316.79 22.86354.61 38.40425.54 66.75

SOIL         T-Z 472.82 91.44472.82457.20

SOIL BEAR    SLOC     7  43.31        .18E-2

SOIL         T-Z 118.20  1.83236.41 11.89316.79 22.86354.61 38.40425.54 66.75

SOIL         T-Z 472.82 91.44472.82457.20

SOIL BEAR    SLOC     7  43.32        .18E-2

SOIL         T-Z 280.74  1.83561.47 11.89752.37 22.86842.21 38.401010.7 66.75

SOIL         T-Z 1122.9 91.441122.9457.20

SOIL BEAR    SLOC     7  52.82        .18E-2

SOIL         T-Z 280.74  1.83561.47 11.89752.37 22.86842.21 38.401010.7 66.75

SOIL         T-Z 1122.9 91.441122.9457.20

SOIL BEAR    SLOC     7  52.83        .18E-2

SOIL         T-Z 155.14  1.83310.29 11.89415.79 22.86465.43 38.40558.52 66.75

SOIL         T-Z 620.57 91.44620.57457.20

SOIL BEAR    SLOC     7  68.90        .18E-2

SOIL         T-Z 221.63  1.83443.27 11.89593.98 22.86664.90 38.40797.88 66.75

SOIL         T-Z 886.54 91.44886.54457.20

SOIL BEAR    SLOC     7  68.91        .18E-2
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SOIL         T-Z 317.68  1.83635.35 11.89851.37 22.86953.03 38.401143.6 66.75

SOIL         T-Z 1270.7 91.441270.7457.20

SOIL BEAR    SLOC     7  79.07        .18E-2

SOIL         T-Z 317.68  1.83635.35 11.89851.37 22.86953.03 38.401143.6 66.75

SOIL         T-Z 1270.7 91.441270.7457.20

SOIL BEAR    SLOC     7  79.08        .18E-2

SOIL         T-Z 192.08  1.83384.17 11.89514.78 22.86576.25 38.40691.50 66.75

SOIL         T-Z 768.33 91.44768.33457.20

SOIL BEAR    SLOC     7 116.47        .18E-2

SOIL         T-Z 236.41  1.83472.82 11.89633.58 22.86709.23 38.40851.07 66.75

SOIL         T-Z 945.64 91.44945.64457.20

SOIL BEAR    SLOC     7 116.48        .18E-2

SOIL         T-Z 354.61  1.83709.23 11.89950.37 22.861063.8 38.401276.6 66.75

SOIL         T-Z 1418.5 91.441418.5457.20

SOIL BEAR    SLOC     7 122.38        .18E-2

SOIL         T-Z 354.61  1.83709.23 11.89950.37 22.861063.8 38.401276.6 66.75

SOIL         T-Z 1418.5 91.441418.5457.20

SOIL BEAR    SLOC     7 122.39        .18E-2

SOIL         T-Z 206.86  1.83413.72 11.89554.38 22.86620.57 38.40744.69 66.75

SOIL         T-Z 827.43 91.44827.43457.20

SOIL BEAR    SLOC     7 131.23        .18E-2

SOIL         T-Z 236.41  1.83472.82 11.89633.58 22.86709.23 38.40851.07 66.75

SOIL         T-Z 945.64 91.44945.64457.20

SOIL BEAR    SLOC     7 131.24        .18E-2

SOIL         T-Z 184.69  1.83369.39 11.89494.98 22.86554.08 38.40664.90 66.75

SOIL         T-Z 738.78 91.44738.78457.20

SOIL BEAR    SLOC     7 147.97        .18E-2

SOIL         T-Z 214.25  1.83428.49 11.89574.18 22.86642.74 38.40771.29 66.75

SOIL         T-Z 856.98 91.44856.98457.20

SOIL BEAR    SLOC     7 147.98        .18E-2

SOIL         T-Z 820.87  1.831641.7 11.892199.9 22.862462.6 38.402955.1 66.75

SOIL         T-Z 3283.5 91.443283.5457.20

SOIL BEAR    SLOC     7 157.48        .18E-2

SOIL         T-Z 820.87  1.831641.7 11.892199.9 22.862462.6 38.402955.1 66.75

SOIL         T-Z 3283.5 91.443283.5457.20

SOIL BEAR    SLOC     7 157.49        .18E-2

SOIL         T-Z 162.53  1.83325.06 11.89435.58 22.86487.59 38.40585.11 66.75

SOIL         T-Z 650.13 91.44650.13457.20

SOIL BEAR    SLOC     7 164.04        .18E-2
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SOIL         T-Z 192.08  1.83384.17 11.89514.78 22.86576.25 38.40691.50 66.75

SOIL         T-Z 768.33 91.44768.33457.20

SOIL BEAR    SLOC     7 164.05        .18E-2

SOIL         T-Z 1641.7  1.833283.5 11.894399.8 22.864925.2 38.405910.2 66.75

SOIL         T-Z 6566.9 91.446566.9457.20

SOIL BEAR    SLOC     7 171.26        .18E-2

SOIL         T-Z 1641.7  1.833283.5 11.894399.8 22.864925.2 38.405910.2 66.75

SOIL         T-Z 6566.9 91.446566.9457.20

SOIL BEAR    SLOC     7 171.27        .18E-2

SOIL         T-Z 347.23  1.83694.45 11.89930.57 22.861041.7 38.401250.0 66.75

SOIL         T-Z 1388.9 91.441388.9457.20

SOIL BEAR    SLOC     7 177.82        .18E-2

SOIL         T-Z 347.23  1.83694.45 11.89930.57 22.861041.7 38.401250.0 66.75

SOIL         T-Z 1388.9 91.441388.9457.20

SOIL BEAR    SLOC     7 177.83        .18E-2

SOIL         T-Z 251.19  1.83502.37 11.89673.18 22.86753.56 38.40904.27 66.75

SOIL         T-Z 1004.7 91.441004.7457.20

SOIL BEAR    SLOC     7 192.26        .18E-2

SOIL         T-Z 280.74  1.83561.47 11.89752.37 22.86842.21 38.401010.7 66.75

SOIL         T-Z 1122.9 91.441122.9457.20

SOIL BEAR    SLOC     7 192.27        .18E-2

SOIL         T-Z 1641.7  1.833283.5 11.894399.8 22.864925.2 38.405910.2 66.75

SOIL         T-Z 6566.9 91.446566.9457.20

SOIL BEAR    SLOC     7 202.43        .18E-2

SOIL         T-Z 1641.7  1.833283.5 11.894399.8 22.864925.2 38.405910.2 66.75

SOIL         T-Z 6566.9 91.446566.9457.20

SOIL BEAR    SLOC     7 202.44        .18E-2

SOIL         T-Z 248.23  1.83496.46 11.89665.26 22.86744.69 38.40893.63 66.75

SOIL         T-Z 992.92 91.44992.92457.20

SOIL BEAR    SLOC     7 210.63        .18E-2

SOIL         T-Z 248.23  1.83496.46 11.89665.26 22.86744.69 38.40893.63 66.75

SOIL         T-Z 992.92 91.44992.92457.20

SOIL BEAR    SLOC     7 210.64        .18E-2

SOIL         T-Z 162.53  1.83325.06 11.89435.58 22.86487.59 38.40585.11 66.75

SOIL         T-Z 650.13 91.44650.13457.20

SOIL BEAR    SLOC     7 229.66        .18E-2

SOIL         T-Z 199.47  1.83398.94 11.89534.58 22.86598.41 38.40718.09 66.75

SOIL         T-Z 797.88 91.44797.88457.20

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* assumed the soil has soft torsional spring of 10 in.lb/rad for stability
SOIL TORSION HEAD                  1000. SOLASSUMED
*
*** P-Y ***
* P-Y friction data : P factorized by .57e-2 for conversion from kN/m to Kips/in
*                     Y factorized by .03937 for conversion from mm to in
SOIL LATERAL HEAD 79         36.00.03937 SOL
SOIL P-Y     SLOCSM   7             .005
SOIL         P-Y   0.00  0.00  9.46  3.43 13.58 10.29 20.57 34.29 29.63102.87
SOIL         P-Y   0.00514.35  0.001028.7
SOIL P-Y     SLOCSM   7   0.66      .005
SOIL         P-Y   0.00  0.00 32.99  2.29 47.34  6.86 71.72 22.86103.28 68.58
SOIL         P-Y   2.17342.90  2.17685.80
SOIL P-Y     SLOCSM   7   0.66      .005
SOIL         P-Y   0.00  0.00 32.99  1.14 47.34  3.43 71.72 11.43103.28 34.29
SOIL         P-Y   2.17171.45  2.17342.90
SOIL P-Y     SLOCSM   7   3.28      .005
SOIL         P-Y   0.00  0.00 45.48  1.14 65.26  3.43 98.87 11.43142.38 34.29
SOIL         P-Y  14.99171.45 14.99342.90
SOIL P-Y     SLOCSM   7   6.56      .005
SOIL         P-Y   0.00  0.00 64.07  1.14 91.93  3.43139.28 11.43200.57 34.29
SOIL         P-Y  42.23171.45 42.23342.90
SOIL P-Y     SLOCSM   7  10.50      .005
SOIL         P-Y   0.00  0.00 89.62  1.14128.59  3.43194.83 11.43280.55 34.29
SOIL         P-Y  94.50171.45 94.50342.90
SOIL P-Y     SLOCSM   7  10.50      .005
SOIL         P-Y   0.00  0.00 89.62  1.14128.59  3.43194.83 11.43280.55 34.29
SOIL         P-Y  94.50171.45 94.50342.90
SOIL P-Y     SLOCSM   7  13.12      .005
SOIL         P-Y   0.00  0.00 98.62  1.14141.50  3.43214.39 11.43308.72 34.29
SOIL         P-Y 129.99171.45129.99342.90
SOIL P-Y     SLOCSM   7  16.40      .005
SOIL         P-Y   0.00  0.00109.87  1.14157.63  3.43238.84 11.43343.93 34.29
SOIL         P-Y 181.01171.45181.01342.90
SOIL P-Y     SLOCSM   7  20.67      .005
SOIL         P-Y   0.00  0.00124.49  1.14178.61  3.43270.62 11.43389.70 34.29
SOIL         P-Y 258.43171.45258.43342.90
SOIL P-Y     SLOCSM   7  20.67      .005
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SOIL         P-Y   0.00  0.00171.93  1.14246.68  3.43373.75 11.43538.21 34.29

SOIL         P-Y 356.92171.45356.92342.90

SOIL P-Y     SLOCSM   7  22.97      .005

SOIL         P-Y   0.00  0.00182.62  1.14262.02  3.43396.99 11.43571.67 34.29

SOIL         P-Y 421.23171.45421.23342.90

SOIL P-Y     SLOCSM   7  26.25      .005

SOIL         P-Y   0.00  0.00197.89  1.14283.93  3.43430.20 11.43619.48 34.29

SOIL         P-Y 521.67171.45521.67342.90

SOIL P-Y     SLOCSM   7  31.17      .005

SOIL         P-Y   0.00  0.00227.14  1.14325.89  3.43493.78 11.43711.04 34.29

SOIL         P-Y 711.04342.90711.04342.90

SOIL P-Y     SLOCSM   7  31.17      .005

SOIL         P-Y   0.00  0.00151.42  1.14217.26  3.43329.18 11.43474.02 34.29

SOIL         P-Y 474.02342.90474.02342.90

SOIL P-Y     SLOCSM   7  32.81      .005

SOIL         P-Y   0.00  0.00151.42  1.14217.26  3.43329.18 11.43474.02 34.29

SOIL         P-Y 474.02342.90474.02342.90

SOIL P-Y     SLOCSM   7  36.09      .005

SOIL         P-Y   0.00  0.00151.42  1.14217.26  3.43329.18 11.43474.02 34.29

SOIL         P-Y 474.02342.90474.02342.90

SOIL P-Y     SLOCSM   7  39.37      .005

SOIL         P-Y   0.00  0.00151.42  1.14217.26  3.43329.18 11.43474.02 34.29

SOIL         P-Y 474.02342.90474.02342.90

SOIL P-Y     SLOCSM   7  43.31      .005

SOIL         P-Y   0.00  0.00151.42  1.14217.26  3.43329.18 11.43474.02 34.29

SOIL         P-Y 474.02342.90474.02342.90

SOIL P-Y     SLOCSM   7  43.31      .005

SOIL         P-Y   0.00  0.00359.63  1.14516.00  3.43781.81 11.431125.8 34.29

SOIL         P-Y 1125.8342.901125.8342.90

SOIL P-Y     SLOCSM   7  45.93      .005

SOIL         P-Y   0.00  0.00359.63  1.14516.00  3.43781.81 11.431125.8 34.29

SOIL         P-Y 1125.8342.901125.8342.90

SOIL P-Y     SLOCSM   7  49.21      .005

SOIL         P-Y   0.00  0.00359.63  1.14516.00  3.43781.81 11.431125.8 34.29

SOIL         P-Y 1125.8342.901125.8342.90

SOIL P-Y     SLOCSM   7  52.82      .005

SOIL         P-Y   0.00  0.00359.63  1.14516.00  3.43781.81 11.431125.8 34.29

SOIL         P-Y 1125.8342.901125.8342.90

SOIL P-Y     SLOCSM   7  52.82      .005
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SOIL         P-Y   0.00  0.00198.74  1.14285.16  3.43432.05 11.43622.16 34.29

SOIL         P-Y 622.16342.90622.16342.90

SOIL P-Y     SLOCSM   7  55.77      .005

SOIL         P-Y   0.00  0.00213.89  1.14306.88  3.43464.97 11.43669.56 34.29

SOIL         P-Y 669.56342.90669.56342.90

SOIL P-Y     SLOCSM   7  59.06      .005

SOIL         P-Y   0.00  0.00230.92  1.14331.32  3.43502.01 11.43722.89 34.29

SOIL         P-Y 722.89342.90722.89342.90

SOIL P-Y     SLOCSM   7  62.34      .005

SOIL         P-Y   0.00  0.00249.85  1.14358.48  3.43543.15 11.43782.14 34.29

SOIL         P-Y 782.14342.90782.14342.90

SOIL P-Y     SLOCSM   7  65.62      .005

SOIL         P-Y   0.00  0.00266.89  1.14382.92  3.43580.19 11.43835.47 34.29

SOIL         P-Y 835.47342.90835.47342.90

SOIL P-Y     SLOCSM   7  68.90      .005

SOIL         P-Y   0.00  0.00283.92  1.14407.37  3.43617.22 11.43888.80 34.29

SOIL         P-Y 888.80342.90888.80342.90

SOIL P-Y     SLOCSM   7  68.90      .005

SOIL         P-Y   0.00  0.00406.95  1.14583.89  3.43884.68 11.431273.9 34.29

SOIL         P-Y 1273.9342.901273.9342.90

SOIL P-Y     SLOCSM   7  72.18      .005

SOIL         P-Y   0.00  0.00406.95  1.14583.89  3.43884.68 11.431273.9 34.29

SOIL         P-Y 1273.9342.901273.9342.90

SOIL P-Y     SLOCSM   7  75.46      .005

SOIL         P-Y   0.00  0.00406.95  1.14583.89  3.43884.68 11.431273.9 34.29

SOIL         P-Y 1273.9342.901273.9342.90

SOIL P-Y     SLOCSM   7  79.07      .005

SOIL         P-Y   0.00  0.00406.95  1.14583.89  3.43884.68 11.431273.9 34.29

SOIL         P-Y 1273.9342.901273.9342.90

SOIL P-Y     SLOCSM   7  79.07      .005

SOIL         P-Y   0.00  0.00246.07  1.14353.05  3.43534.92 11.43770.29 34.29

SOIL         P-Y 770.29342.90770.29342.90

SOIL P-Y     SLOCSM   7  85.30      .005

SOIL         P-Y   0.00  0.00255.53  1.14366.63  3.43555.50 11.43799.92 34.29

SOIL         P-Y 799.92342.90799.92342.90

SOIL P-Y     SLOCSM   7  91.86      .005

SOIL         P-Y   0.00  0.00264.99  1.14380.21  3.43576.07 11.43829.54 34.29

SOIL         P-Y 829.54342.90829.54342.90

SOIL P-Y     SLOCSM   7  98.43      .005
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SOIL         P-Y   0.00  0.00276.35  1.14396.50  3.43600.76 11.43865.10 34.29

SOIL         P-Y 865.10342.90865.10342.90

SOIL P-Y     SLOCSM   7 104.99      .005

SOIL         P-Y   0.00  0.00285.81  1.14410.08  3.43621.33 11.43894.72 34.29

SOIL         P-Y 894.72342.90894.72342.90

SOIL P-Y     SLOCSM   7 111.55      .005

SOIL         P-Y   0.00  0.00295.28  1.14423.66  3.43641.91 11.43924.35 34.29

SOIL         P-Y 924.35342.90924.35342.90

SOIL P-Y     SLOCSM   7 116.47      .005

SOIL         P-Y   0.00  0.00302.85  1.14434.52  3.43658.37 11.43948.05 34.29

SOIL         P-Y 948.05342.90948.05342.90

SOIL P-Y     SLOCSM   7 116.47      .005

SOIL         P-Y   0.00  0.00454.27  1.14651.78  3.43987.55 11.431422.1 34.29

SOIL         P-Y 1422.1342.901422.1342.90

SOIL P-Y     SLOCSM   7 118.11      .005

SOIL         P-Y   0.00  0.00454.27  1.14651.78  3.43987.55 11.431422.1 34.29

SOIL         P-Y 1422.1342.901422.1342.90

SOIL P-Y     SLOCSM   7 122.38      .005

SOIL         P-Y   0.00  0.00454.27  1.14651.78  3.43987.55 11.431422.1 34.29

SOIL         P-Y 1422.1342.901422.1342.90

SOIL P-Y     SLOCSM   7 122.38      .005

SOIL         P-Y   0.00  0.00264.99  1.14380.21  3.43576.07 11.43829.54 34.29

SOIL         P-Y 829.54342.90829.54342.90

SOIL P-Y     SLOCSM   7 124.67      .005

SOIL         P-Y   0.00  0.00274.81  1.14394.29  3.43597.41 11.43860.27 34.29

SOIL         P-Y 860.27342.90860.27342.90

SOIL P-Y     SLOCSM   7 127.95      .005

SOIL         P-Y   0.00  0.00288.83  1.14414.41  3.43627.89 11.43904.16 34.29

SOIL         P-Y 904.16342.90904.16342.90

SOIL P-Y     SLOCSM   7 131.23      .005

SOIL         P-Y   0.00  0.00302.85  1.14434.52  3.43658.37 11.43948.05 34.29

SOIL         P-Y 948.05342.90948.05342.90

SOIL P-Y     SLOCSM   7 131.23      .005

SOIL         P-Y   0.00  0.00236.60  1.14339.47  3.43514.35 11.43740.66 34.29

SOIL         P-Y 740.66342.90740.66342.90

SOIL P-Y     SLOCSM   7 134.51      .005

SOIL         P-Y   0.00  0.00236.60  1.14339.47  3.43514.35 11.43740.66 34.29

SOIL         P-Y 740.66342.90740.66342.90

SOIL P-Y     SLOCSM   7 137.80      .005
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SOIL         P-Y   0.00  0.00236.60  1.14339.47  3.43514.35 11.43740.66 34.29

SOIL         P-Y 740.66342.90740.66342.90

SOIL P-Y     SLOCSM   7 141.08      .005

SOIL         P-Y   0.00  0.00236.60  1.14339.47  3.43514.35 11.43740.66 34.29

SOIL         P-Y 740.66342.90740.66342.90

SOIL P-Y     SLOCSM   7 144.36      .005

SOIL         P-Y   0.00  0.00236.60  1.14339.47  3.43514.35 11.43740.66 34.29

SOIL         P-Y 740.66342.90740.66342.90

SOIL P-Y     SLOCSM   7 147.97      .005

SOIL         P-Y   0.00  0.00236.60  1.14339.47  3.43514.35 11.43740.66 34.29

SOIL         P-Y 740.66342.90740.66342.90

SOIL P-Y     SLOCSM   7 147.97      .005

SOIL         P-Y   0.00  0.001859.8  3.812449.4  5.083551.1  7.624152.5  9.14

SOIL         P-Y 6054.2 15.248223.9 34.29

SOIL P-Y     SLOCSM   7 150.92      .005

SOIL         P-Y   0.00  0.001897.0  3.812498.3  5.083621.9  7.624235.4  9.14

SOIL         P-Y 6175.0 15.248388.0 34.29

SOIL P-Y     SLOCSM   7 154.20      .005

SOIL         P-Y   0.00  0.001938.2  3.812552.6  5.083700.7  7.624327.4  9.14

SOIL         P-Y 6309.2 15.248570.4 34.29

SOIL P-Y     SLOCSM   7 157.48      .005

SOIL         P-Y   0.00  0.001979.4  3.812606.9  5.083779.4  7.624419.5  9.14

SOIL         P-Y 6443.4 15.248752.7 34.29

SOIL P-Y     SLOCSM   7 157.48      .005

SOIL         P-Y   0.00  0.00208.21  1.14298.73  3.43452.63 11.43651.78 34.29

SOIL         P-Y 651.78342.90651.78342.90

SOIL P-Y     SLOCSM   7 160.76      .005

SOIL         P-Y   0.00  0.00227.14  1.14325.89  3.43493.78 11.43711.04 34.29

SOIL         P-Y 711.04342.90711.04342.90

SOIL P-Y     SLOCSM   7 164.04      .005

SOIL         P-Y   0.00  0.00246.07  1.14353.05  3.43534.92 11.43770.29 34.29

SOIL         P-Y 770.29342.90770.29342.90

SOIL P-Y     SLOCSM   7 164.04      .005

SOIL         P-Y   0.00  0.004114.5  3.815409.6  5.087807.4  7.629100.1  9.14

SOIL         P-Y 13073. 15.2417215. 34.29

SOIL P-Y     SLOCSM   7 167.32      .005

SOIL         P-Y   0.00  0.004196.8  3.815517.8  5.087963.6  7.629282.1  9.14

SOIL         P-Y 13335. 15.2417559. 34.29

SOIL P-Y     SLOCSM   7 171.26      .005
```

```
SOIL         P-Y   0.00  0.004295.5  3.815647.6  5.088151.0  7.629500.5  9.14

SOIL         P-Y 13649. 15.2417972. 34.29

SOIL P-Y     SLOCSM   7 171.26      .005

SOIL         P-Y   0.00  0.00444.81  1.14638.21  3.43966.98 11.431392.5 34.29

SOIL         P-Y 1392.5342.901392.5342.90

SOIL P-Y     SLOCSM   7 173.88      .005

SOIL         P-Y   0.00  0.00444.81  1.14638.21  3.43966.98 11.431392.5 34.29

SOIL         P-Y 1392.5342.901392.5342.90

SOIL P-Y     SLOCSM   7 177.82      .005

SOIL         P-Y   0.00  0.00444.81  1.14638.21  3.43966.98 11.431392.5 34.29

SOIL         P-Y 1392.5342.901392.5342.90

SOIL P-Y     SLOCSM   7 177.82      .005

SOIL         P-Y   0.00  0.00340.71  1.14488.84  3.43740.66 11.431066.6 34.29

SOIL         P-Y 1066.6342.901066.6342.90

SOIL P-Y     SLOCSM   7 183.73      .005

SOIL         P-Y   0.00  0.00356.19  1.14511.06  3.43774.33 11.431115.0 34.29

SOIL         P-Y 1115.0342.901115.0342.90

SOIL P-Y     SLOCSM   7 192.26      .005

SOIL         P-Y   0.00  0.00378.56  1.14543.15  3.43822.96 11.431185.1 34.29

SOIL         P-Y 1185.1342.901185.1342.90

SOIL P-Y     SLOCSM   7 192.26      .005

SOIL         P-Y   0.00  0.004810.1  3.816312.5  5.089066.1  7.6210530.  9.14

SOIL         P-Y 14898. 15.2419047. 34.29

SOIL P-Y     SLOCSM   7 196.85      .005

SOIL         P-Y   0.00  0.004925.0  3.816463.3  5.089282.7  7.6210782.  9.14

SOIL         P-Y 15253. 15.2419502. 34.29

SOIL P-Y     SLOCSM   7 202.43      .005

SOIL         P-Y   0.00  0.005064.6  3.816646.5  5.089545.7  7.6211087.  9.14

SOIL         P-Y 15686. 15.2420055. 34.29

SOIL P-Y     SLOCSM   7 202.43      .005

SOIL         P-Y   0.00  0.00317.99  1.14456.25  3.43691.29 11.43995.45 34.29

SOIL         P-Y 995.45342.90995.45342.90

SOIL P-Y     SLOCSM   7 206.69      .005

SOIL         P-Y   0.00  0.00317.99  1.14456.25  3.43691.29 11.43995.45 34.29

SOIL         P-Y 995.45342.90995.45342.90

SOIL P-Y     SLOCSM   7 210.63      .005

SOIL         P-Y   0.00  0.00317.99  1.14456.25  3.43691.29 11.43995.45 34.29

SOIL         P-Y 995.45342.90995.45342.90

SOIL P-Y     SLOCSM   7 210.63      .005
```

```
SOIL         P-Y   0.00  0.00230.92  1.14331.32  3.43502.01 11.43722.89 34.29

SOIL         P-Y 722.89342.90722.89342.90

SOIL P-Y     SLOCSM   7 216.54      .005

SOIL         P-Y   0.00  0.00246.20  1.14353.24  3.43535.21 11.43770.70 34.29

SOIL         P-Y 770.70342.90770.70342.90

SOIL P-Y     SLOCSM   7 223.10      .005

SOIL         P-Y   0.00  0.00263.17  1.14377.59  3.43572.10 11.43823.82 34.29

SOIL         P-Y 823.82342.90823.82342.90

SOIL P-Y     SLOCSM   7 229.66      .005

SOIL         P-Y   0.00  0.00280.14  1.14401.93  3.43608.99 11.43876.95 34.29

SOIL         P-Y 876.95342.90876.95342.90

*

**

END
```

B.4 Dynamic Model input

- Seastate Model Input

```
LDOPT SF    NF+Z64.20000490.0000  -62.00   62.00GLOB   DYN   FLDCMBMPTNP      K

LCSEL DY          21   26   31   36   41   46   51   56

LCFAC DY   1.200  21   26   31

LCFAC DY   1.250  41   46   51

LCFAC DY   1.440  36

LCFAC DY   1.000  56

FILE B

END
```

- Dynamic Model Input

```
YY - PHE ONWJ

DYNOPT +ZEN 30CONS 490.00                          1.0         SA-Z

DYNOP2   1.15    1.

END
```

B.5 Wave Response Input

```
WROPT  ENPSL  ALL ES    0.0010    0.0010   30   -1
PSEL                      OMBBSB                  11.0  8.5  0.1
DAMP        2.0
END
```

B.6 Wave Seastate Fatigue Input

```
LDOPT   IN  NF+Z    64.2   490.0   -62.0    62.0GLOB            CMBMPTNPNP    K
*
*
FILE S
*
*
LOAD
****WAVE LOAD FATIGUE 0 DEGREE SACS = NORTH WEST DIRECTION ENV*******
LOADCN   1
WAVE
WAVE1.00AIRY  1.95      3.3809         0.000      D        18.002020AL10 1 0
LOADCN   2
WAVE
WAVE1.00AIRY  5.95      4.9368         0.000      D        18.002020AL10 1 0
LOADCN   3
WAVE
WAVE1.00AIRY  9.95      5.3166         0.000      D        18.002020AL10 1 0
LOADCN   4
WAVE
WAVE1.00AIRY 13.95      5.5444         0.000      D        18.002020AL10 1 0
LOADCN   5
WAVE
WAVE1.00AIRY 17.95      5.7722         0.000      D        18.002020AL10 1 0
LOADCN   6
WAVE
WAVE1.00AIRY 21.95      5.9242         0.000      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 45 DEGREE SACS = WEST DIRECTIONS ENV *********
LOADCN   7
```

```
WAVE
WAVE1.00AIRY  1.95      3.3090         45.00      D        18.002020AL10 1 0
LOADCN   8
WAVE
WAVE1.00AIRY  5.95      4.8609         45.00      D        18.002020AL10 1 0
LOADCN   9
WAVE
WAVE1.00AIRY  9.95      5.2406         45.00      D        18.002020AL10 1 0
LOADCN  10
WAVE
WAVE1.00AIRY 13.95      5.3925         45.00      D        18.002020AL10 1 0
LOADCN  11
WAVE
WAVE1.00AIRY 17.95      5.5444         45.00      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 90 DEGREE SACS = SOUTH WEST DIRECTIONS ENV*****
LOADCN  12
WAVE
WAVE1.00AIRY  1.95      2.8774         90.00      D        18.002020AL10 1 0
LOADCN  13
WAVE
WAVE1.00AIRY  5.95      3.7975         90.00      D        18.002020AL10 1 0
LOADCN  14
WAVE
WAVE1.00AIRY  9.95      4.1013         90.00      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 135 DEGREE SACS = SOUTH DIRECTIONS ENV *********
LOADCN  15
WAVE
WAVE1.00AIRY  1.95      2.9494         135.0      D        18.002020AL10 1 0
LOADCN  16
WAVE
WAVE1.00AIRY  5.95      3.8734         135.0      D        18.002020AL10 1 0
LOADCN  17
WAVE
WAVE1.00AIRY  9.95      4.2532         135.0      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 180 DEGREE SACS = SOUTH EAST DIRECTIONS ENV****
LOADCN  18
WAVE
WAVE1.00AIRY  1.95      3.1651         180.0      D        18.002020AL10 1 0
LOADCN  19
```

```
WAVE
WAVE1.00AIRY  5.95      4.1013         180.0      D        18.002020AL10 1 0
LOADCN  20
WAVE
WAVE1.00AIRY  9.95      4.5570         180.0      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 225 DEGREE SACS = EAST DIRECTIONS ENV ********
LOADCN  21
WAVE
WAVE1.00AIRY  1.95      3.3809         225.0      D        18.002020AL10 1 0
LOADCN  22
WAVE
WAVE1.00AIRY  5.95      5.0128         225.0      D        18.002020AL10 1 0
LOADCN  23
WAVE
WAVE1.00AIRY  9.95      5.3925         225.0      D        18.002020AL10 1 0
LOADCN  24
WAVE
WAVE1.00AIRY 13.95      5.6204         225.0      D        18.002020AL10 1 0
LOADCN  25
WAVE
WAVE1.00AIRY 17.95      5.8482         225.0      D        18.002020AL10 1 0
LOADCN  26
WAVE
WAVE1.00AIRY 21.95      6.0001         225.0      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 270 DEGREE SACS = NORTH EAST DIRECTIONS ENV****
LOADCN  27
WAVE
WAVE1.00AIRY  1.95      3.3809         270.0      D        18.002020AL10 1 0
LOADCN  28
WAVE
WAVE1.00AIRY  5.95      5.0128         270.0      D        18.002020AL10 1 0
LOADCN  29
WAVE
WAVE1.00AIRY  9.95      5.4685         270.0      D        18.002020AL10 1 0
LOADCN  30
WAVE
WAVE1.00AIRY 13.95      5.6963         270.0      D        18.002020AL10 1 0
LOADCN  31
WAVE
```

```
WAVE1.00AIRY 17.95      5.9242         270.0      D        18.002020AL10 1 0
LOADCN  32
WAVE
WAVE1.00AIRY 21.95      6.1520         270.0      D        18.002020AL10 1 0
****WAVE LOAD FATIGUE 315 DEGREE SACS = NORTH DIRECTIONS ENV *********
LOADCN  33
WAVE
WAVE1.00AIRY  1.95      3.3809         315.0      D        18.002020AL10 1 0
LOADCN  34
WAVE
WAVE1.00AIRY  5.95      5.0128         315.0      D        18.002020AL10 1 0
LOADCN  35
WAVE
WAVE1.00AIRY  9.95      5.3925         315.0      D        18.002020AL10 1 0
LOADCN  36
WAVE
WAVE1.00AIRY 13.95      5.6204         315.0      D        18.002020AL10 1 0
LOADCN  37
WAVE
WAVE1.00AIRY 17.95      5.8482         315.0      D        18.002020AL10 1 0
LOADCN  38
WAVE
WAVE1.00AIRY 21.95      6.0001         315.0      D        18.002020AL10 1 0
END
END
```

B.7 Fatigue Model Input

SN Curve WJT

```
TITLEYYA WELLHEAD PLATFORM
FTOPT      20.   10.0    1.0  SMWJT  SKMXMNSK                          KTLPEFT
FTOPT2   PTPTVCRD  PV  UP            -11.97   19.0DN2   -62.    62.TI21.75
JSLC  101L102L103LM031M112M119201L202L203L 202 206 209 216 222 223 228 229 210
JSLC   213201X204X2B012B022B032B04P001P101P011P111301L302L303L 310P018P118
*JSLC  201X204X2B012B022B032B04P001P101P011P111 310P018P118
```

```
GRPSEL RM      W.B

SCFLM  20.  2.5

RELIEF

*

*SACS 0 DEGREE (ENV NORTH WEST)

FTCASE   1  9419800.       1.0 MMN      1.950

FTCOMB   1    1.0  2    1.0  3    1.0  4    1.0  5    1.0  6    1.0  7    1.0

FTCOMB   8    1.0  9    1.0 10    1.0 11    1.0 12    1.0 13    1.0 14    1.0

FTCOMB  15    1.0 16    1.0 17    1.0 18    1.0 19    1.0 20    1.0       1.0

FTCASE   2   353475.       1.0 MMN      5.950

FTCOMB  21    1.0 22    1.0 23    1.0 24    1.0 25    1.0 26    1.0 27    1.0

FTCOMB  28    1.0 29    1.0 30    1.0 31    1.0 32    1.0 33    1.0 34    1.0

FTCOMB  35    1.0 36    1.0 37    1.0 38    1.0 39    1.0 40    1.0       1.0

FTCASE   3    13687.       1.0 MMN      9.950

FTCOMB  41    1.0 42    1.0 43    1.0 44    1.0 45    1.0 46    1.0 47    1.0

FTCOMB  48    1.0 49    1.0 50    1.0 51    1.0 52    1.0 53    1.0 54    1.0

FTCOMB  55    1.0 56    1.0 57    1.0 58    1.0 59    1.0 60    1.0       1.0

FTCASE   4      521.       1.0 MMN      13.95

FTCOMB  61    1.0 62    1.0 63    1.0 64    1.0 65    1.0 66    1.0 67    1.0

FTCOMB  68    1.0 69    1.0 70    1.0 71    1.0 72    1.0 73    1.0 74    1.0

FTCOMB  75    1.0 76    1.0 77    1.0 78    1.0 79    1.0 80    1.0       1.0

FTCASE   5       16.       1.0 MMN      17.95

FTCOMB  81    1.0 82    1.0 83    1.0 84    1.0 85    1.0 86    1.0 87    1.0

FTCOMB  88    1.0 89    1.0 90    1.0 91    1.0 92    1.0 93    1.0 94    1.0

FTCOMB  95    1.0 96    1.0 97    1.0 98    1.0 99    1.0100    1.0       1.0

FTCASE   6        1.       1.0 MMN      21.95

FTCOMB 101    1.0102    1.0103    1.0104    1.0105    1.0106    1.0107    1.0

FTCOMB 108    1.0109    1.0110    1.0111    1.0112    1.0113    1.0114    1.0

FTCOMB 115    1.0116    1.0117    1.0118    1.0119    1.0120    1.0       1.0

*

*SACS 45 DEGREE (ENV WEST)

FTCASE   7  8705200.       1.0 MMN      1.950

FTCOMB 121    1.0122    1.0123    1.0124    1.0125    1.0126    1.0127    1.0

FTCOMB 128    1.0129    1.0130    1.0131    1.0132    1.0133    1.0134    1.0

FTCOMB 135    1.0136    1.0137    1.0138    1.0139    1.0140    1.0       1.0

FTCASE   8   327550.       1.0 MMN      5.950

FTCOMB 141    1.0142    1.0143    1.0144    1.0145    1.0146    1.0147    1.0

FTCOMB 148    1.0149    1.0150    1.0151    1.0152    1.0153    1.0154    1.0

FTCOMB 155    1.0156    1.0157    1.0158    1.0159    1.0160    1.0       1.0
```

```
FTCASE   9    11809.       1.0 MMN      9.950

FTCOMB 161    1.0162    1.0163    1.0164    1.0165    1.0166    1.0167    1.0

FTCOMB 168    1.0169    1.0170    1.0171    1.0172    1.0173    1.0174    1.0

FTCOMB 175    1.0176    1.0177    1.0178    1.0179    1.0180    1.0       1.0

FTCASE  10      429.       1.0 MMN      13.95

FTCOMB 181    1.0182    1.0183    1.0184    1.0185    1.0186    1.0187    1.0

FTCOMB 188    1.0189    1.0190    1.0191    1.0192    1.0193    1.0194    1.0

FTCOMB 195    1.0196    1.0197    1.0198    1.0199    1.0200    1.0       1.0

FTCASE  11       12.       1.0 MMN      17.95

FTCOMB 201    1.0202    1.0203    1.0204    1.0205    1.0206    1.0207    1.0

FTCOMB 208    1.0209    1.0210    1.0211    1.0212    1.0213    1.0214    1.0

FTCOMB 215    1.0216    1.0217    1.0218    1.0219    1.0220    1.0       1.0

*

*SACS 90 DEGREE (ENV SOUTH WEST)

FTCASE  12   779600.       1.0 MMN      1.950

FTCOMB 221    1.0222    1.0223    1.0224    1.0225    1.0226    1.0227    1.0

FTCOMB 228    1.0229    1.0230    1.0231    1.0232    1.0233    1.0234    1.0

FTCOMB 235    1.0236    1.0237    1.0238    1.0239    1.0240    1.0       1.0

FTCASE  13    30395.       1.0 MMN      5.950

FTCOMB 241    1.0242    1.0243    1.0244    1.0245    1.0246    1.0247    1.0

FTCOMB 248    1.0249    1.0250    1.0251    1.0252    1.0253    1.0254    1.0

FTCOMB 255    1.0256    1.0257    1.0258    1.0259    1.0260    1.0       1.0

FTCASE  14        5.       1.0 MMN      9.950

FTCOMB 261    1.0262    1.0263    1.0264    1.0265    1.0266    1.0267    1.0

FTCOMB 268    1.0269    1.0270    1.0271    1.0272    1.0273    1.0274    1.0

FTCOMB 275    1.0276    1.0277    1.0278    1.0279    1.0280    1.0       1.0

*

*SACS 135 DEGREE (ENV SOUTH)

FTCASE  15  1494200.       1.0 MMN      1.950

FTCOMB 281    1.0282    1.0283    1.0284    1.0285    1.0286    1.0287    1.0

FTCOMB 288    1.0289    1.0290    1.0291    1.0292    1.0293    1.0294    1.0

FTCOMB 295    1.0296    1.0297    1.0298    1.0299    1.0300    1.0       1.0

FTCASE  16    57675.       1.0 MMN      5.950

FTCOMB 301    1.0302    1.0303    1.0304    1.0305    1.0306    1.0307    1.0

FTCOMB 308    1.0309    1.0310    1.0311    1.0312    1.0313    1.0314    1.0

FTCOMB 315    1.0316    1.0317    1.0318    1.0319    1.0320    1.0       1.0

FTCASE  17      625.       1.0 MMN      9.950

FTCOMB 321    1.0322    1.0323    1.0324    1.0325    1.0326    1.0327    1.0

FTCOMB 328    1.0329    1.0330    1.0331    1.0332    1.0333    1.0334    1.0
```

```
FTCOMB 335    1.0336    1.0337    1.0338    1.0339    1.0340    1.0       1.0

*

*SACS 180 DEGREE (ENV SOUTH EAST)

FTCASE  18  4027800.       1.0 MMN      1.950

FTCOMB 341    1.0342    1.0343    1.0344    1.0345    1.0346    1.0347    1.0

FTCOMB 348    1.0349    1.0350    1.0351    1.0352    1.0353    1.0354    1.0

FTCOMB 355    1.0356    1.0357    1.0358    1.0359    1.0360    1.0       1.0

FTCASE  19   154150.       1.0 MMN      5.950

FTCOMB 361    1.0362    1.0363    1.0364    1.0365    1.0366    1.0367    1.0

FTCOMB 368    1.0369    1.0370    1.0371    1.0372    1.0373    1.0374    1.0

FTCOMB 375    1.0376    1.0377    1.0378    1.0379    1.0380    1.0       1.0

FTCASE  20     3050.       1.0 MMN      9.950

FTCOMB 381    1.0382    1.0383    1.0384    1.0385    1.0386    1.0387    1.0

FTCOMB 388    1.0389    1.0390    1.0391    1.0392    1.0393    1.0394    1.0

FTCOMB 395    1.0396    1.0397    1.0398    1.0399    1.0400    1.0       1.0

*

*SACS 225 DEGREE (ENV EAST)

FTCASE  21 19489100.       1.0 MMN      1.950

FTCOMB 401    1.0402    1.0403    1.0404    1.0405    1.0406    1.0407    1.0

FTCOMB 408    1.0409    1.0410    1.0411    1.0412    1.0413    1.0414    1.0

FTCOMB 415    1.0416    1.0417    1.0418    1.0419    1.0420    1.0       1.0

FTCASE  22   731450.       1.0 MMN      5.950

FTCOMB 421    1.0422    1.0423    1.0424    1.0425    1.0426    1.0427    1.0

FTCOMB 428    1.0429    1.0430    1.0431    1.0432    1.0433    1.0434    1.0

FTCOMB 435    1.0436    1.0437    1.0438    1.0439    1.0440    1.0       1.0

FTCASE  23    26320.       1.0 MMN      9.950

FTCOMB 441    1.0442    1.0443    1.0444    1.0445    1.0446    1.0447    1.0

FTCOMB 448    1.0449    1.0450    1.0451    1.0452    1.0453    1.0454    1.0

FTCOMB 455    1.0456    1.0457    1.0458    1.0459    1.0460    1.0       1.0

FTCASE  24     1073.       1.0 MMN      13.95

FTCOMB 461    1.0462    1.0463    1.0464    1.0465    1.0466    1.0467    1.0

FTCOMB 468    1.0469    1.0470    1.0471    1.0472    1.0473    1.0474    1.0

FTCOMB 475    1.0476    1.0477    1.0478    1.0479    1.0480    1.0       1.0

FTCASE  25       36.       1.0 MMN      17.95

FTCOMB 481    1.0482    1.0483    1.0484    1.0485    1.0486    1.0487    1.0

FTCOMB 488    1.0489    1.0490    1.0491    1.0492    1.0493    1.0494    1.0

FTCOMB 495    1.0496    1.0497    1.0498    1.0499    1.0500    1.0       1.0

FTCASE  26        1.       1.0 MMN      21.95

FTCOMB 501    1.0502    1.0503    1.0504    1.0505    1.0506    1.0507    1.0
```

```
FTCOMB 508    1.0509    1.0510    1.0511    1.0512    1.0513    1.0514    1.0

FTCOMB 515    1.0516    1.0517    1.0518    1.0519    1.0520    1.0       1.0

*

*SACS 270 DEGREE (ENV NORTH EAST)

FTCASE  27 13057700.       1.0 MMN      1.950

FTCOMB 521    1.0522    1.0523    1.0524    1.0525    1.0526    1.0527    1.0

FTCOMB 528    1.0529    1.0530    1.0531    1.0532    1.0533    1.0534    1.0

FTCOMB 535    1.0536    1.0537    1.0538    1.0539    1.0540    1.0       1.0

FTCASE  28   490075.       1.0 MMN      5.950

FTCOMB 541    1.0542    1.0543    1.0544    1.0545    1.0546    1.0547    1.0

FTCOMB 548    1.0549    1.0550    1.0551    1.0552    1.0553    1.0554    1.0

FTCOMB 555    1.0556    1.0557    1.0558    1.0559    1.0560    1.0       1.0

FTCASE  29    18980.       1.0 MMN      9.950

FTCOMB 561    1.0562    1.0563    1.0564    1.0565    1.0566    1.0567    1.0

FTCOMB 568    1.0569    1.0570    1.0571    1.0572    1.0573    1.0574    1.0

FTCOMB 575    1.0576    1.0577    1.0578    1.0579    1.0580    1.0       1.0

FTCASE  30      720.       1.0 MMN      13.95

FTCOMB 581    1.0582    1.0583    1.0584    1.0585    1.0586    1.0587    1.0

FTCOMB 588    1.0589    1.0590    1.0591    1.0592    1.0593    1.0594    1.0

FTCOMB 595    1.0596    1.0597    1.0598    1.0599    1.0600    1.0       1.0

FTCASE  31       24.       1.0 MMN      17.95

FTCOMB 601    1.0602    1.0603    1.0604    1.0605    1.0606    1.0607    1.0

FTCOMB 608    1.0609    1.0610    1.0611    1.0612    1.0613    1.0614    1.0

FTCOMB 615    1.0616    1.0617    1.0618    1.0619    1.0620    1.0       1.0

FTCASE  32        1.       1.0 MMN      21.95

FTCOMB 621    1.0622    1.0623    1.0624    1.0625    1.0626    1.0627    1.0

FTCOMB 628    1.0629    1.0630    1.0631    1.0632    1.0633    1.0634    1.0

FTCOMB 635    1.0636    1.0637    1.0638    1.0639    1.0640    1.0       1.0

*

*SACS 315 DEGREE (ENV NORTH)

FTCASE  33  7990600.       1.0 MMN      1.950

FTCOMB 641    1.0642    1.0643    1.0644    1.0645    1.0646    1.0647    1.0

FTCOMB 648    1.0649    1.0650    1.0651    1.0652    1.0653    1.0654    1.0

FTCOMB 655    1.0656    1.0657    1.0658    1.0659    1.0660    1.0       1.0

FTCASE  34   300660.       1.0 MMN      5.950

FTCOMB 661    1.0662    1.0663    1.0664    1.0665    1.0666    1.0667    1.0

FTCOMB 668    1.0669    1.0670    1.0671    1.0672    1.0673    1.0674    1.0

FTCOMB 675    1.0676    1.0677    1.0678    1.0679    1.0680    1.0       1.0

FTCASE  35    10784.       1.0 MMN      9.950
```

```
FTCOMB 681    1.0682    1.0683    1.0684    1.0685    1.0686    1.0687    1.0

FTCOMB 688    1.0689    1.0690    1.0691    1.0692    1.0693    1.0694    1.0

FTCOMB 695    1.0696    1.0697    1.0698    1.0699    1.0700    1.0       1.0

FTCASE  36      440.       1.0 MMN      13.95

FTCOMB 701    1.0702    1.0703    1.0704    1.0705    1.0706    1.0707    1.0

FTCOMB 708    1.0709    1.0710    1.0711    1.0712    1.0713    1.0714    1.0

FTCOMB 715    1.0716    1.0717    1.0718    1.0719    1.0720    1.0       1.0

FTCASE  37       15.       1.0 MMN      17.95

FTCOMB 721    1.0722    1.0723    1.0724    1.0725    1.0726    1.0727    1.0

FTCOMB 728    1.0729    1.0730    1.0731    1.0732    1.0733    1.0734    1.0

FTCOMB 735    1.0736    1.0737    1.0738    1.0739    1.0740    1.0       1.0

FTCASE  38        1.       1.0 MMN      21.95

FTCOMB 741    1.0742    1.0743    1.0744    1.0745    1.0746    1.0747    1.0

FTCOMB 748    1.0749    1.0750    1.0751    1.0752    1.0753    1.0754    1.0

FTCOMB 755    1.0756    1.0757    1.0758    1.0759    1.0760    1.0       1.0

END
```

SN Curve WJ2 (Improvement Weld)

```
TITLEYYA WELLHEAD PLATFORM

FTOPT      20.   10.0    1.0  SMWJ2  SKMXMNSK                              KTLPEFT

FTOPT2   PTPTVCRD  PV  UP            -11.97   19.0DN2   -62.    62.TI21.75

JSLC  103L

GRPSEL RM      W.B

SCFLM  20.  2.5

RELIEF

*

*SACS 0 DEGREE (ENV NORTH WEST)

FTCASE   1  9419800.       1.0 MMN      1.950

FTCOMB   1    1.0  2    1.0  3    1.0  4    1.0  5    1.0  6    1.0  7    1.0

FTCOMB   8    1.0  9    1.0 10    1.0 11    1.0 12    1.0 13    1.0 14    1.0

FTCOMB  15    1.0 16    1.0 17    1.0 18    1.0 19    1.0 20    1.0       1.0

FTCASE   2   353475.       1.0 MMN      5.950

FTCOMB  21    1.0 22    1.0 23    1.0 24    1.0 25    1.0 26    1.0 27    1.0

FTCOMB  28    1.0 29    1.0 30    1.0 31    1.0 32    1.0 33    1.0 34    1.0

FTCOMB  35    1.0 36    1.0 37    1.0 38    1.0 39    1.0 40    1.0       1.0

FTCASE   3    13687.       1.0 MMN      9.950
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FTCOMB  41    1.0 42    1.0 43    1.0 44    1.0 45    1.0 46    1.0 47    1.0

FTCOMB  48    1.0 49    1.0 50    1.0 51    1.0 52    1.0 53    1.0 54    1.0

FTCOMB  55    1.0 56    1.0 57    1.0 58    1.0 59    1.0 60    1.0       1.0

FTCASE   4      521.       1.0 MMN      13.95

FTCOMB  61    1.0 62    1.0 63    1.0 64    1.0 65    1.0 66    1.0 67    1.0

FTCOMB  68    1.0 69    1.0 70    1.0 71    1.0 72    1.0 73    1.0 74    1.0

FTCOMB  75    1.0 76    1.0 77    1.0 78    1.0 79    1.0 80    1.0       1.0

FTCASE   5       16.       1.0 MMN      17.95

FTCOMB  81    1.0 82    1.0 83    1.0 84    1.0 85    1.0 86    1.0 87    1.0

FTCOMB  88    1.0 89    1.0 90    1.0 91    1.0 92    1.0 93    1.0 94    1.0

FTCOMB  95    1.0 96    1.0 97    1.0 98    1.0 99    1.0100    1.0       1.0

FTCASE   6        1.       1.0 MMN      21.95

FTCOMB 101    1.0102    1.0103    1.0104    1.0105    1.0106    1.0107    1.0

FTCOMB 108    1.0109    1.0110    1.0111    1.0112    1.0113    1.0114    1.0

FTCOMB 115    1.0116    1.0117    1.0118    1.0119    1.0120    1.0       1.0

*

*SACS 45 DEGREE (ENV WEST)

FTCASE   7  8705200.       1.0 MMN      1.950

FTCOMB 121    1.0122    1.0123    1.0124    1.0125    1.0126    1.0127    1.0

FTCOMB 128    1.0129    1.0130    1.0131    1.0132    1.0133    1.0134    1.0

FTCOMB 135    1.0136    1.0137    1.0138    1.0139    1.0140    1.0       1.0

FTCASE   8   327550.       1.0 MMN      5.950

FTCOMB 141    1.0142    1.0143    1.0144    1.0145    1.0146    1.0147    1.0

FTCOMB 148    1.0149    1.0150    1.0151    1.0152    1.0153    1.0154    1.0

FTCOMB 155    1.0156    1.0157    1.0158    1.0159    1.0160    1.0       1.0

FTCASE   9    11809.       1.0 MMN      9.950

FTCOMB 161    1.0162    1.0163    1.0164    1.0165    1.0166    1.0167    1.0

FTCOMB 168    1.0169    1.0170    1.0171    1.0172    1.0173    1.0174    1.0

FTCOMB 175    1.0176    1.0177    1.0178    1.0179    1.0180    1.0       1.0

FTCASE  10      429.       1.0 MMN      13.95

FTCOMB 181    1.0182    1.0183    1.0184    1.0185    1.0186    1.0187    1.0

FTCOMB 188    1.0189    1.0190    1.0191    1.0192    1.0193    1.0194    1.0

FTCOMB 195    1.0196    1.0197    1.0198    1.0199    1.0200    1.0       1.0

FTCASE  11       12.       1.0 MMN      17.95

FTCOMB 201    1.0202    1.0203    1.0204    1.0205    1.0206    1.0207    1.0

FTCOMB 208    1.0209    1.0210    1.0211    1.0212    1.0213    1.0214    1.0

FTCOMB 215    1.0216    1.0217    1.0218    1.0219    1.0220    1.0       1.0

*

*SACS 90 DEGREE (ENV SOUTH WEST)
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```
FTCASE  12   779600.       1.0 MMN      1.950

FTCOMB 221    1.0222    1.0223    1.0224    1.0225    1.0226    1.0227    1.0

FTCOMB 228    1.0229    1.0230    1.0231    1.0232    1.0233    1.0234    1.0

FTCOMB 235    1.0236    1.0237    1.0238    1.0239    1.0240    1.0       1.0

FTCASE  13    30395.       1.0 MMN      5.950

FTCOMB 241    1.0242    1.0243    1.0244    1.0245    1.0246    1.0247    1.0

FTCOMB 248    1.0249    1.0250    1.0251    1.0252    1.0253    1.0254    1.0

FTCOMB 255    1.0256    1.0257    1.0258    1.0259    1.0260    1.0       1.0

FTCASE  14        5.       1.0 MMN      9.950

FTCOMB 261    1.0262    1.0263    1.0264    1.0265    1.0266    1.0267    1.0

FTCOMB 268    1.0269    1.0270    1.0271    1.0272    1.0273    1.0274    1.0

FTCOMB 275    1.0276    1.0277    1.0278    1.0279    1.0280    1.0       1.0

*

*SACS 135 DEGREE (ENV SOUTH)

FTCASE  15  1494200.       1.0 MMN      1.950

FTCOMB 281    1.0282    1.0283    1.0284    1.0285    1.0286    1.0287    1.0

FTCOMB 288    1.0289    1.0290    1.0291    1.0292    1.0293    1.0294    1.0

FTCOMB 295    1.0296    1.0297    1.0298    1.0299    1.0300    1.0       1.0

FTCASE  16    57675.       1.0 MMN      5.950

FTCOMB 301    1.0302    1.0303    1.0304    1.0305    1.0306    1.0307    1.0

FTCOMB 308    1.0309    1.0310    1.0311    1.0312    1.0313    1.0314    1.0

FTCOMB 315    1.0316    1.0317    1.0318    1.0319    1.0320    1.0       1.0

FTCASE  17      625.       1.0 MMN      9.950

FTCOMB 321    1.0322    1.0323    1.0324    1.0325    1.0326    1.0327    1.0

FTCOMB 328    1.0329    1.0330    1.0331    1.0332    1.0333    1.0334    1.0

FTCOMB 335    1.0336    1.0337    1.0338    1.0339    1.0340    1.0       1.0

*

*SACS 180 DEGREE (ENV SOUTH EAST)

FTCASE  18  4027800.       1.0 MMN      1.950

FTCOMB 341    1.0342    1.0343    1.0344    1.0345    1.0346    1.0347    1.0

FTCOMB 348    1.0349    1.0350    1.0351    1.0352    1.0353    1.0354    1.0

FTCOMB 355    1.0356    1.0357    1.0358    1.0359    1.0360    1.0       1.0

FTCASE  19   154150.       1.0 MMN      5.950

FTCOMB 361    1.0362    1.0363    1.0364    1.0365    1.0366    1.0367    1.0

FTCOMB 368    1.0369    1.0370    1.0371    1.0372    1.0373    1.0374    1.0

FTCOMB 375    1.0376    1.0377    1.0378    1.0379    1.0380    1.0       1.0

FTCASE  20     3050.       1.0 MMN      9.950

FTCOMB 381    1.0382    1.0383    1.0384    1.0385    1.0386    1.0387    1.0

FTCOMB 388    1.0389    1.0390    1.0391    1.0392    1.0393    1.0394    1.0
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FTCOMB 395    1.0396    1.0397    1.0398    1.0399    1.0400    1.0       1.0

*

*SACS 225 DEGREE (ENV EAST)

FTCASE  21 19489100.       1.0 MMN      1.950

FTCOMB 401    1.0402    1.0403    1.0404    1.0405    1.0406    1.0407    1.0

FTCOMB 408    1.0409    1.0410    1.0411    1.0412    1.0413    1.0414    1.0

FTCOMB 415    1.0416    1.0417    1.0418    1.0419    1.0420    1.0       1.0

FTCASE  22   731450.       1.0 MMN      5.950

FTCOMB 421    1.0422    1.0423    1.0424    1.0425    1.0426    1.0427    1.0

FTCOMB 428    1.0429    1.0430    1.0431    1.0432    1.0433    1.0434    1.0

FTCOMB 435    1.0436    1.0437    1.0438    1.0439    1.0440    1.0       1.0

FTCASE  23    26320.       1.0 MMN      9.950

FTCOMB 441    1.0442    1.0443    1.0444    1.0445    1.0446    1.0447    1.0

FTCOMB 448    1.0449    1.0450    1.0451    1.0452    1.0453    1.0454    1.0

FTCOMB 455    1.0456    1.0457    1.0458    1.0459    1.0460    1.0       1.0

FTCASE  24     1073.       1.0 MMN      13.95

FTCOMB 461    1.0462    1.0463    1.0464    1.0465    1.0466    1.0467    1.0

FTCOMB 468    1.0469    1.0470    1.0471    1.0472    1.0473    1.0474    1.0

FTCOMB 475    1.0476    1.0477    1.0478    1.0479    1.0480    1.0       1.0

FTCASE  25       36.       1.0 MMN      17.95

FTCOMB 481    1.0482    1.0483    1.0484    1.0485    1.0486    1.0487    1.0

FTCOMB 488    1.0489    1.0490    1.0491    1.0492    1.0493    1.0494    1.0

FTCOMB 495    1.0496    1.0497    1.0498    1.0499    1.0500    1.0       1.0

FTCASE  26        1.       1.0 MMN      21.95

FTCOMB 501    1.0502    1.0503    1.0504    1.0505    1.0506    1.0507    1.0

FTCOMB 508    1.0509    1.0510    1.0511    1.0512    1.0513    1.0514    1.0

FTCOMB 515    1.0516    1.0517    1.0518    1.0519    1.0520    1.0       1.0

*

*SACS 270 DEGREE (ENV NORTH EAST)

FTCASE  27 13057700.       1.0 MMN      1.950

FTCOMB 521    1.0522    1.0523    1.0524    1.0525    1.0526    1.0527    1.0

FTCOMB 528    1.0529    1.0530    1.0531    1.0532    1.0533    1.0534    1.0

FTCOMB 535    1.0536    1.0537    1.0538    1.0539    1.0540    1.0       1.0

FTCASE  28   490075.       1.0 MMN      5.950

FTCOMB 541    1.0542    1.0543    1.0544    1.0545    1.0546    1.0547    1.0

FTCOMB 548    1.0549    1.0550    1.0551    1.0552    1.0553    1.0554    1.0

FTCOMB 555    1.0556    1.0557    1.0558    1.0559    1.0560    1.0       1.0

FTCASE  29    18980.       1.0 MMN      9.950

FTCOMB 561    1.0562    1.0563    1.0564    1.0565    1.0566    1.0567    1.0
```

```
FTCOMB 568    1.0569    1.0570    1.0571    1.0572    1.0573    1.0574    1.0

FTCOMB 575    1.0576    1.0577    1.0578    1.0579    1.0580    1.0       1.0

FTCASE  30      720.       1.0 MMN      13.95

FTCOMB 581    1.0582    1.0583    1.0584    1.0585    1.0586    1.0587    1.0

FTCOMB 588    1.0589    1.0590    1.0591    1.0592    1.0593    1.0594    1.0

FTCOMB 595    1.0596    1.0597    1.0598    1.0599    1.0600    1.0       1.0

FTCASE  31       24.       1.0 MMN      17.95

FTCOMB 601    1.0602    1.0603    1.0604    1.0605    1.0606    1.0607    1.0

FTCOMB 608    1.0609    1.0610    1.0611    1.0612    1.0613    1.0614    1.0

FTCOMB 615    1.0616    1.0617    1.0618    1.0619    1.0620    1.0       1.0

FTCASE  32        1.       1.0 MMN      21.95

FTCOMB 621    1.0622    1.0623    1.0624    1.0625    1.0626    1.0627    1.0

FTCOMB 628    1.0629    1.0630    1.0631    1.0632    1.0633    1.0634    1.0

FTCOMB 635    1.0636    1.0637    1.0638    1.0639    1.0640    1.0       1.0

*

*SACS 315 DEGREE (ENV NORTH)

FTCASE  33  7990600.       1.0 MMN      1.950

FTCOMB 641    1.0642    1.0643    1.0644    1.0645    1.0646    1.0647    1.0

FTCOMB 648    1.0649    1.0650    1.0651    1.0652    1.0653    1.0654    1.0

FTCOMB 655    1.0656    1.0657    1.0658    1.0659    1.0660    1.0       1.0

FTCASE  34   300660.       1.0 MMN      5.950

FTCOMB 661    1.0662    1.0663    1.0664    1.0665    1.0666    1.0667    1.0

FTCOMB 668    1.0669    1.0670    1.0671    1.0672    1.0673    1.0674    1.0

FTCOMB 675    1.0676    1.0677    1.0678    1.0679    1.0680    1.0       1.0

FTCASE  35    10784.       1.0 MMN      9.950

FTCOMB 681    1.0682    1.0683    1.0684    1.0685    1.0686    1.0687    1.0

FTCOMB 688    1.0689    1.0690    1.0691    1.0692    1.0693    1.0694    1.0

FTCOMB 695    1.0696    1.0697    1.0698    1.0699    1.0700    1.0       1.0

FTCASE  36      440.       1.0 MMN      13.95

FTCOMB 701    1.0702    1.0703    1.0704    1.0705    1.0706    1.0707    1.0

FTCOMB 708    1.0709    1.0710    1.0711    1.0712    1.0713    1.0714    1.0

FTCOMB 715    1.0716    1.0717    1.0718    1.0719    1.0720    1.0       1.0

FTCASE  37       15.       1.0 MMN      17.95

FTCOMB 721    1.0722    1.0723    1.0724    1.0725    1.0726    1.0727    1.0

FTCOMB 728    1.0729    1.0730    1.0731    1.0732    1.0733    1.0734    1.0

FTCOMB 735    1.0736    1.0737    1.0738    1.0739    1.0740    1.0       1.0

FTCASE  38        1.       1.0 MMN      21.95

FTCOMB 741    1.0742    1.0743    1.0744    1.0745    1.0746    1.0747    1.0

FTCOMB 748    1.0749    1.0750    1.0751    1.0752    1.0753    1.0754    1.0
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FTCOMB 755    1.0756    1.0757    1.0758    1.0759    1.0760    1.0       1.0

END
```

LAMPIRAN A. MODEL STRUCTURE

C.1 Basic Load Case Summary

** SEASTATE BASIC LOAD CASE DESCRIPTIONS **

LOAD CASE	LOAD LABEL	********** DESCRIPTION **********
1	21	TOPSIDE NON GENERATED DEAD LOAD
2	26	JACKET NON GENERATED DEAD LOAD
3	31	MECHANICAL WEIGHT
4	32	CRANE SWL LOAD
5	33	CRANE MOMENT +X DIRECTION
6	34	CRANE MOMENT +Y DIRECTION
7	36	PIPING LOAD
8	41	ELECTRICAL BULK LOAD
9	46	INSTRUMENT BULK LOAD
10	51	SAFETY BULK LOAD
11	56	LIVE LOAD AND LAY DOWN AREA
12	6	SELFWEIGHT MSL-WD (FATIGUE)
13	281	COD Wave 0 Deg - MSL WD
14	282	COD WAVE 90 DEG - MSL WD
15	283	COD WAVE 180 DEG - MSL WD
16	284	COD Wave 270 Deg - MSL WD

****** SEASTATE BASIC LOAD CASE SUMMARY ******

RELATIVE TO MUDLINE ELEVATION

LOAD CASE	LOAD LABEL	FX (KIPS)	FY (KIPS)	FZ (KIPS)	MX (FT-KIPS)	MY (FT-KIPS)	MZ (FT-KIPS)	DEAD LOAD (KIPS)	BUOYANCY (KIPS)
1	21	0.00	0.00	-107.65	370.7	42.2	0.0	0.00	0.00
2	26	0.00	0.00	-70.25	743.0	28.6	0.0	0.00	0.00
3	31	0.00	0.00	-226.85	1859.6	499.5	0.0	0.00	0.00
4	32	0.00	0.00	-11.03	143.2	-165.4	0.0	0.00	0.00
5	33	0.00	0.00	0.00	441.1	0.0	0.0	0.00	0.00
6	34	0.00	0.00	0.00	0.0	441.1	0.0	0.00	0.00
7	36	1.33	10.74	-129.39	-474.2	84.7	57.9	0.00	0.00
8	41	0.00	0.00	-9.92	-28.1	-186.1	0.0	0.00	0.00
9	46	0.00	0.00	-22.90	28.4	67.4	0.0	0.00	0.00
10	51	0.00	0.00	-1.10	27.6	28.3	0.0	0.00	0.00
11	56	0.00	0.00	-620.84	684.9	-1509.3	0.0	0.00	0.00
12	57	25.00	0.00	0.00	0.0	1622.3	-294.3	0.00	0.00
13	6	0.00	0.00	-974.33	461.7	-234.6	0.0	1148.43	174.10
14	281	31.64	0.53	0.27	-47.9	1418.6	88.1	0.00	0.00
15	282	-0.26	30.93	-3.52	-1334.3	-21.1	-7.5	0.00	0.00
16	283	-31.75	-0.23	0.54	8.2	-1421.4	-91.1	0.00	0.00
17	284	0.36	-28.63	4.33	1193.3	26.8	7.3	0.00	0.00

C.2 Combined Load Case Summary

***** SEASTATE COMBINED LOAD CASE SUMMARY *****

RELATIVE TO MUDLINE ELEVATION

LOAD CASE	LOAD LABEL	FX (KIPS)	FY (KIPS)	FZ (KIPS)	MX (FT-KIPS)	MY (FT-KIPS)	MZ (FT-KIPS)
18	C100	1.91	15.46	-2455.75	4135.7	-1085.7	83.3
19	3101	33.55	16.00	-2455.48	4087.9	332.9	171.5
20	3102	1.65	46.39	-2459.27	2801.4	-1106.7	75.8
21	3103	-29.84	15.24	-2455.21	4143.9	-2507.1	-7.8
22	3104	2.27	-13.16	-2451.42	5329.0	-1058.9	90.6

C.3 Natural Period of the Structure

SACS IV-FREQUENCIES AND GENERALIZED MASS

MODE	FREQ.(CPS)	GEN. MASS	EIGENVALUE	PERIOD(SECS)
1	0.560196	2.2899639E+03	8.0716069E-02	1.7850890
2	0.608471	2.5602912E+03	6.8416402E-02	1.6434632
3	0.861162	4.0571642E+03	3.4156239E-02	1.1612211
4	1.401938	7.0387448E+03	1.2887920E-02	0.7132985
5	1.528959	7.1431125E+03	1.0835496E-02	0.6540400
6	2.303114	4.5483496E+02	4.7753973E-03	0.4341948
7	2.462728	7.7699427E+02	4.1764507E-03	0.4060538
8	2.661302	4.0562046E+03	3.5764472E-03	0.3757559
9	2.962886	7.6216606E+02	2.8854294E-03	0.3375088
10	3.364101	8.3514175E+02	2.2382166E-03	0.2972562
11	3.693144	2.0643988E+03	1.8571537E-03	0.2707720
12	4.359219	4.1953004E+03	1.3329776E-03	0.2293989
13	4.487838	7.9182860E+02	1.2576675E-03	0.2228244
14	4.500896	4.7158718E+03	1.2503805E-03	0.2221780
15	4.711008	8.6882361E+02	1.1413333E-03	0.2122688

16	5.824855	2.1525627E+03	7.4656899E-04	0.1716781
17	7.206020	1.4914558E+03	4.8780847E-04	0.1387729
18	7.643073	1.4423719E+03	4.3361490E-04	0.1308374
19	9.807341	1.5872511E+03	2.6335263E-04	0.1019644
20	11.027901	4.8944267E+02	2.0828333E-04	0.0906791
21	11.196381	6.0319385E+02	2.0206212E-04	0.0893146
22	13.986901	1.1660174E+03	1.2947837E-04	0.0714955
23	14.422120	5.1155013E+02	1.2178169E-04	0.0693379
24	14.807394	1.9912557E+03	1.1552687E-04	0.0675338
25	15.005650	2.5273693E+03	1.1249432E-04	0.0666416
26	16.393124	1.0025892E+03	9.4257684E-05	0.0610012
27	17.596550	3.8706559E+03	8.1806002E-05	0.0568293
28	18.505009	1.5511614E+03	7.3971021E-05	0.0540394
29	19.767416	1.6011151E+03	6.4824691E-05	0.0505883
30	20.534881	8.3446727E+02	6.0069756E-05	0.0486976

C.4 Weight and Centre of Gravity Summary

********** WEIGHT AND CENTER OF GRAVITY SUMMARY **********

********** ITEM DESCRIPTION **********	********** WEIGHT **********			******** CENTER OF GRAVITY ********		
	X	Y	Z	X	Y	Z
	KIPS	KIPS	KIPS	FT	FT	FT

MEMBER ELEMENTS	1320.687	1320.687	1320.687	-0.261	-1.363	-2.133
MEMBER ELEMENT NORMAL ADDED MASS	302.335	302.992	65.339	-0.267	-4.131	-28.037
FLOODED MEMBER ELEMENT ENTRAPPED FLUID	245.639	245.639	245.639	0.000	-4.586	-30.626
LOAD CASES CONVERTED TO WEIGHTS	1335.271	1335.271	1335.271	-0.742	-3.766	48.352
********** TOTAL **********	3203.932	3204.589	2966.936	-0.442	-2.873	17.658

C.5 Mass Participant

MASS PARTICIPATION FACTOR REPORT

BASED ON RETAINED DEGREES OF FREEDOM

	******* MASS PARTICIPATION FACTORS *******			***** CUMULATIVE FACTORS *****		
MODE	X	Y	Z	X	Y	Z
1	0.6054980	0.0032807	0.0000000	0.605498	0.003281	0.000000
2	0.0024452	0.6783575	0.0027136	0.607943	0.681638	0.002714
3	0.0527467	0.0040695	0.0000373	0.660690	0.685708	0.002751
4	0.2435397	0.0089924	0.0003559	0.904230	0.694700	0.003107
5	0.0068799	0.2128024	0.0064248	0.911109	0.907502	0.009532
6	0.0033946	0.0035546	0.0003211	0.914504	0.911057	0.009853
7	0.0023579	0.0007774	0.0005995	0.916862	0.911834	0.010452
8	0.0009211	0.0021249	0.0001128	0.917783	0.913959	0.010565
9	0.0031063	0.0020927	0.0001965	0.920889	0.916052	0.010762
10	0.0001876	0.0033221	0.0000157	0.921077	0.919374	0.010777
11	0.0406929	0.0013077	0.0000896	0.961770	0.920682	0.010867
12	0.0001793	0.0601377	0.2622107	0.961949	0.980820	0.273077
13	0.0014260	0.0002724	0.1796116	0.963375	0.981092	0.452689
14	0.0017528	0.0055355	0.4628096	0.965128	0.986627	0.915499
15	0.0014571	0.0003103	0.0516619	0.966585	0.986938	0.967161
16	0.0165903	0.0000575	0.0007111	0.983175	0.986995	0.967872
17	0.0055913	0.0000874	0.0021945	0.988767	0.987083	0.970066
18	0.0016478	0.0001805	0.0089707	0.990415	0.987263	0.979037

19	0.0002890	0.0001443	0.0016702	0.990704	0.987407	0.980707
20	0.0067825	0.0008958	0.0001054	0.997486	0.988303	0.980812
21	0.0005709	0.0112157	0.0007826	0.998057	0.999519	0.981595
22	0.0012584	0.0000136	0.0002498	0.999315	0.999532	0.981845
23	0.0000212	0.0000092	0.0006641	0.999337	0.999542	0.982509
24	0.0000973	0.0000426	0.0068725	0.999434	0.999584	0.989381
25	0.0000813	0.0000005	0.0002321	0.999515	0.999585	0.989613
26	0.0000323	0.0000677	0.0015304	0.999548	0.999652	0.991144
27	0.0000478	0.0000092	0.0003020	0.999595	0.999662	0.991446
28	0.0003392	0.0000360	0.0001665	0.999934	0.999698	0.991612
29	0.0000013	0.0000237	0.0000076	0.999936	0.999721	0.991620
30	0.0000069	0.0000107	0.0000544	0.999943	0.999732	0.991674

C.6 Fatigue Applied Load

APPLIED LOAD SUMMARY

LOAD CASE NO.	ID	TOTAL FORCE(X) KIPS	TOTAL FORCE(Y) KIPS	TOTAL FORCE(Z) KIPS
1	1	3.104813E-01	2.619845E-01	-1.932483E+00
2	2	-2.282178E+00	1.245356E-01	-1.890212E+00
3	3	-4.721060E+00	-1.193239E-01	-1.707550E+00
4	4	-6.513647E+00	-3.794187E-01	-1.364924E+00
5	5	-7.294791E+00	-5.056172E-01	-8.935731E-01
6	6	-7.382651E+00	-4.668453E-01	-3.437578E-01
7	7	-6.889819E+00	-4.104479E-01	2.977977E-01
8	8	-5.809841E+00	-3.775397E-01	8.672348E-01
9	9	-4.216690E+00	-2.547238E-01	1.400903E+00
10	10	-2.334443E+00	-7.553468E-02	1.868126E+00
11	11	-2.739435E-01	2.757800E-02	2.077798E+00
12	12	1.900479E+00	-1.004361E-02	2.035517E+00
13	13	4.092073E+00	2.302721E-02	1.772920E+00
14	14	5.940865E+00	6.663812E-02	1.309621E+00
15	15	7.228978E+00	1.657533E-01	8.266224E-01
16	16	7.886610E+00	2.232523E-01	7.812003E-02
17	17	7.839304E+00	3.483129E-01	-5.834179E-01
18	18	6.872149E+00	5.129880E-01	-1.097129E+00
19	19	5.051680E+00	5.695159E-01	-1.561177E+00
20	20	2.799712E+00	4.294005E-01	-1.843133E+00

21	21	7.549771E+00	1.331866E+00	-7.394913E+00
22	22	-4.107038E+00	1.238331E+00	-7.786685E+00
23	23	-1.507813E+01	1.019629E+00	-7.217955E+00
24	24	-2.447477E+01	4.497442E-01	-5.938468E+00
25	25	-2.983757E+01	-1.693889E-01	-4.091292E+00
26	26	-3.134862E+01	-6.942693E-01	-1.896625E+00
27	27	-3.000901E+01	-9.550741E-01	1.991590E-01
28	28	-2.507473E+01	-9.564820E-01	2.031355E+00
29	29	-1.858014E+01	-8.991873E-01	3.420138E+00
30	30	-1.143115E+01	-8.766758E-01	4.171208E+00
31	31	-2.792155E+00	-8.621622E-01	4.715904E+00
32	32	5.190654E+00	-8.408885E-01	5.175012E+00
33	33	1.289124E+01	-8.132299E-01	5.378626E+00
34	34	2.102774E+01	-4.462775E-01	5.325003E+00
35	35	2.727672E+01	-9.221485E-02	4.495417E+00
36	36	3.171395E+01	2.851804E-01	2.772995E+00
37	37	3.399390E+01	6.993641E-01	5.525357E-01
38	38	3.190224E+01	9.595339E-01	-1.718897E+00
39	39	2.677259E+01	1.188828E+00	-3.970996E+00
40	40	1.878889E+01	1.346535E+00	-5.985343E+00
41	41	2.284024E+01	2.337673E+00	-1.098587E+01
42	42	4.817532E+00	2.481582E+00	-1.291621E+01
43	43	-1.557269E+01	1.864390E+00	-1.317862E+01
44	44	-3.486448E+01	1.081975E+00	-1.173503E+01
45	45	-4.921800E+01	-2.675359E-01	-8.925346E+00
46	46	-5.552885E+01	-1.026523E+00	-5.360060E+00
47	47	-5.223663E+01	-1.460959E+00	-1.621914E+00
48	48	-4.051851E+01	-1.500700E+00	1.815356E+00
49	49	-2.735556E+01	-1.030716E+00	4.181275E+00
50	50	-1.494559E+01	-1.382957E+00	5.634856E+00
51	51	-5.592521E+00	-1.406022E+00	6.485932E+00
52	52	2.914704E+00	-1.716704E+00	7.093745E+00
53	53	1.340421E+01	-1.748188E+00	7.884243E+00
54	54	2.770708E+01	-8.227481E-01	8.784271E+00
55	55	4.312274E+01	-4.285160E-01	8.837559E+00
56	56	5.606918E+01	4.260645E-01	7.578993E+00
57	57	6.253054E+01	8.623627E-01	4.660876E+00
58	58	6.011213E+01	1.218356E+00	1.003781E+00
59	59	5.248710E+01	1.860396E+00	-3.356250E+00

60	60	3.887156E+01	1.789194E+00	-7.621176E+00
61	61	6.207020E+01	4.046099E+00	-1.463383E+01
62	62	2.696585E+01	4.269172E+00	-1.872013E+01
63	63	-1.601536E+01	3.015141E+00	-2.050234E+01
64	64	-5.139259E+01	1.374962E+00	-1.983909E+01
65	65	-7.289944E+01	-7.211417E-01	-1.580217E+01
66	66	-7.465677E+01	-1.551835E+00	-1.018419E+01
67	67	-6.273384E+01	-1.517576E+00	-4.033924E+00
68	68	-4.834303E+01	-1.273709E+00	1.506265E+00
69	69	-3.572220E+01	-9.517170E-01	4.865832E+00
70	70	-2.787116E+01	-1.952628E+00	6.967106E+00
71	71	-1.772615E+01	-2.528170E+00	8.372037E+00
72	72	-1.644845E+00	-2.838859E+00	9.412746E+00
73	73	1.920660E+01	-2.364834E+00	1.040417E+01
74	74	4.248155E+01	-8.194454E-01	1.243699E+01
75	75	6.162489E+01	-6.296382E-02	1.429979E+01
76	76	7.496864E+01	1.611778E-01	1.439521E+01
77	77	8.275508E+01	1.053652E-01	1.188359E+01
78	78	8.742220E+01	4.864973E-01	6.985514E+00
79	79	8.937253E+01	1.628360E+00	-5.972838E-01
80	80	8.155420E+01	2.529131E+00	-8.296669E+00
81	81	1.119379E+02	5.828774E+00	-1.908357E+01
82	82	5.938003E+01	4.950798E+00	-2.676583E+01
83	83	-3.666910E+00	4.696744E+00	-2.948864E+01
84	84	-6.118815E+01	1.468264E+00	-2.898070E+01
85	85	-8.909656E+01	-5.203398E-01	-2.459200E+01
86	86	-9.295401E+01	-1.271578E+00	-1.607656E+01
87	87	-7.950093E+01	-2.115724E+00	-6.976137E+00
88	88	-5.913201E+01	-6.957594E-01	2.212810E-01
89	89	-4.777555E+01	-2.146199E+00	3.610029E+00
90	90	-3.679470E+01	-2.034187E+00	5.125392E+00
91	91	-2.384883E+01	-3.232790E+00	6.304079E+00
92	92	-4.667973E+00	-3.433061E+00	7.999524E+00
93	93	2.392282E+01	-2.832998E+00	1.023463E+01
94	94	4.930238E+01	-1.772917E+00	1.450683E+01
95	95	7.406513E+01	-2.611507E-01	2.054172E+01
96	96	9.299862E+01	-5.990994E-01	2.282845E+01
97	97	1.084772E+02	-3.382034E-01	2.183835E+01
98	98	1.281595E+02	1.206844E-01	1.623005E+01

99	99	1.398492E+02	2.112112E+00	4.940722E+00
100	100	1.397493E+02	3.071613E+00	-7.970774E+00
101	101	2.154452E+02	6.804971E+00	-2.880155E+01
102	102	1.332037E+02	6.844912E+00	-4.225423E+01
103	103	2.194727E+01	1.005677E+01	-4.691009E+01
104	104	-6.964099E+01	4.246387E+00	-4.151461E+01
105	105	-1.159718E+02	-7.674393E-01	-3.476694E+01
106	106	-1.149999E+02	-4.681244E+00	-2.400421E+01
107	107	-9.185029E+01	-3.219685E+00	-1.092650E+01
108	108	-6.180708E+01	-1.193346E-01	-1.083656E+00
109	109	-4.932041E+01	-2.732179E-01	2.952926E+00
110	110	-5.176679E+01	-1.232124E+00	4.965580E+00
111	111	-4.359431E+01	-4.886999E+00	7.214187E+00
112	112	-1.551781E+01	-5.897481E+00	8.366207E+00
113	113	3.068846E+01	-5.976501E+00	1.103322E+01
114	114	6.542115E+01	-7.211055E-01	1.603326E+01
115	115	8.855989E+01	1.277727E+00	2.677545E+01
116	116	1.083758E+02	-2.256461E-01	3.413196E+01
117	117	1.320294E+02	-3.851779E+00	3.594308E+01
118	118	1.702882E+02	-2.013049E+00	2.991603E+01
119	119	2.084643E+02	1.440944E+00	1.419301E+01
120	120	2.353377E+02	3.426935E+00	-7.512128E+00
121	121	3.968942E-01	8.275576E-01	-4.701211E-01
122	122	-6.782896E-01	2.598907E-01	1.362119E-01
123	123	-1.725336E+00	-7.257431E-01	6.418798E-01
124	124	-2.679838E+00	-1.933955E+00	1.115947E+00
125	125	-3.365542E+00	-3.232727E+00	1.428159E+00
126	126	-3.543795E+00	-4.404212E+00	1.643919E+00
127	127	-3.443800E+00	-5.221565E+00	1.753719E+00
128	128	-3.130103E+00	-5.025399E+00	1.627491E+00
129	129	-2.530838E+00	-3.792127E+00	1.320535E+00
130	130	-1.609012E+00	-1.999202E+00	8.906326E-01
131	131	-4.866792E-01	8.564665E-02	3.722423E-01
132	132	6.645152E-01	2.305065E+00	-1.405065E-01
133	133	1.835908E+00	4.036839E+00	-7.721092E-01
134	134	2.911724E+00	4.642238E+00	-1.253732E+00
135	135	3.609097E+00	4.340333E+00	-1.539658E+00
136	136	3.918497E+00	3.729668E+00	-1.731651E+00
137	137	3.865073E+00	3.006470E+00	-1.788463E+00

138	138	3.461549E+00	2.093769E+00	-1.619882E+00
139	139	2.645804E+00	1.373977E+00	-1.349103E+00
140	140	1.531420E+00	1.125270E+00	-9.697741E-01
141	141	2.371537E+00	1.595579E+00	-7.061539E+00
142	142	-5.279764E+00	-5.930680E+00	-5.835200E+00
143	143	-1.233418E+01	-1.199043E+01	-4.111281E+00
144	144	-1.770104E+01	-1.695389E+01	-2.128294E+00
145	145	-2.070888E+01	-2.055649E+01	3.257857E-02
146	146	-2.128136E+01	-2.226222E+01	1.817603E+00
147	147	-1.943590E+01	-2.155151E+01	3.117823E+00
148	148	-1.593943E+01	-1.806161E+01	3.885619E+00
149	149	-1.113007E+01	-1.212864E+01	4.905329E+00
150	150	-5.466018E+00	-5.463597E+00	5.634238E+00
151	151	1.873714E-01	9.612908E-01	5.977013E+00
152	152	6.018022E+00	6.480811E+00	5.628878E+00
153	153	1.156066E+01	1.110931E+01	4.326928E+00
154	154	1.609049E+01	1.539701E+01	2.511634E+00
155	155	1.991893E+01	1.980500E+01	4.223133E-01
156	156	2.232992E+01	2.330961E+01	-1.981510E+00
157	157	2.228913E+01	2.472538E+01	-4.259179E+00
158	158	2.035891E+01	2.292223E+01	-6.293836E+00
159	159	1.621980E+01	1.761262E+01	-7.283569E+00
160	160	9.813490E+00	9.928469E+00	-7.590476E+00
161	161	7.601318E+00	1.326361E+01	-1.341377E+01
162	162	-4.040470E+00	-8.126789E-01	-1.242700E+01
163	163	-1.492539E+01	-1.598723E+01	-9.859189E+00
164	164	-2.545228E+01	-2.970802E+01	-6.110894E+00
165	165	-3.187053E+01	-3.679108E+01	-2.621655E+00
166	166	-3.588092E+01	-3.773928E+01	7.703598E-01
167	167	-3.548576E+01	-3.323938E+01	3.298848E+00
168	168	-2.813267E+01	-2.561232E+01	5.112259E+00
169	169	-1.918876E+01	-1.874188E+01	6.669122E+00
170	170	-8.891711E+00	-1.188140E+01	7.193567E+00
171	171	1.255454E+00	-4.225031E+00	7.878836E+00
172	172	7.458336E+00	3.985307E+00	9.069933E+00
173	173	1.416447E+01	1.484031E+01	9.132004E+00
174	174	2.241488E+01	2.640317E+01	7.630790E+00
175	175	3.079037E+01	3.586716E+01	4.997993E+00
176	176	3.948442E+01	4.186539E+01	1.397424E+00

177	177	4.473932E+01	4.308505E+01	-2.776730E+00
178	178	4.228193E+01	4.006518E+01	-6.984102E+00
179	179	3.471986E+01	3.488008E+01	-9.919737E+00
180	180	2.271272E+01	2.613534E+01	-1.245236E+01
181	181	2.793353E+01	3.339258E+01	-1.987864E+01
182	182	1.637367E+01	1.137249E+01	-2.097980E+01
183	183	-4.004116E+00	-1.406807E+01	-1.810872E+01
184	184	-2.993335E+01	-3.711028E+01	-1.272466E+01
185	185	-5.212532E+01	-5.174576E+01	-6.771904E+00
186	186	-6.144502E+01	-5.402834E+01	-2.980228E-01
187	187	-5.248435E+01	-4.598726E+01	3.408785E+00
188	188	-3.305373E+01	-3.405035E+01	6.229705E+00
189	189	-1.467092E+01	-2.362399E+01	8.566283E+00
190	190	-4.394692E+00	-1.607549E+01	9.577132E+00
191	191	-3.766998E+00	-8.904839E+00	1.021053E+01
192	192	-2.844359E+00	1.040101E+00	1.232952E+01
193	193	6.959007E+00	1.628998E+01	1.389390E+01
194	194	2.689833E+01	3.393993E+01	1.470282E+01
195	195	5.114996E+01	5.075936E+01	1.216000E+01
196	196	6.882985E+01	6.206584E+01	7.688050E+00
197	197	7.182048E+01	6.558582E+01	1.062954E+00
198	198	6.262148E+01	6.423601E+01	-5.792749E+00
199	199	4.917268E+01	5.900780E+01	-1.139779E+01
200	200	3.740616E+01	4.915115E+01	-1.673035E+01
201	201	6.777263E+01	6.513366E+01	-2.727843E+01
202	202	3.923204E+01	3.193732E+01	-3.018032E+01
203	203	-1.944594E+00	-7.323672E+00	-2.841571E+01
204	204	-4.403779E+01	-4.365238E+01	-2.123519E+01
205	205	-7.125276E+01	-6.607857E+01	-1.179428E+01
206	206	-7.255763E+01	-6.899063E+01	-3.554891E+00
207	207	-5.486848E+01	-5.617232E+01	1.193790E+00
208	208	-3.264282E+01	-3.956413E+01	3.611731E+00
209	209	-1.902696E+01	-2.704108E+01	5.540897E+00
210	210	-1.674958E+01	-2.110499E+01	7.034561E+00
211	211	-1.618126E+01	-1.524819E+01	1.021694E+01
212	212	-8.428262E+00	-3.768105E+00	1.441548E+01
213	213	1.323663E+01	1.742135E+01	1.909649E+01
214	214	4.276352E+01	4.222911E+01	2.310586E+01
215	215	6.948269E+01	6.539236E+01	2.186508E+01

216	216	8.551958E+01	8.216520E+01	1.760591E+01
217	217	8.900013E+01	9.079062E+01	8.950881E+00
218	218	8.655507E+01	9.480026E+01	-2.631376E+00
219	219	8.400046E+01	9.454040E+01	-1.311533E+01
220	220	8.052418E+01	8.647217E+01	-2.203063E+01
221	221	3.120405E-01	2.858794E+00	2.335594E+00
222	222	4.193124E-01	3.878449E+00	2.048695E+00
223	223	4.478242E-01	4.638448E+00	1.545985E+00
224	224	4.139856E-01	4.931100E+00	8.606113E-01
225	225	3.434533E-01	4.677612E+00	8.974964E-02
226	226	2.407873E-01	3.987249E+00	-7.493876E-01
227	227	1.359016E-01	2.867205E+00	-1.492063E+00
228	228	1.272781E-02	1.451575E+00	-2.006776E+00
229	229	-1.550590E-01	-3.251911E-02	-2.441931E+00
230	230	-2.632539E-01	-1.535381E+00	-2.596045E+00
231	231	-3.338703E-01	-2.842732E+00	-2.470320E+00
232	232	-3.660035E-01	-3.775727E+00	-2.147187E+00
233	233	-4.163085E-01	-4.295724E+00	-1.535571E+00
234	234	-4.030712E-01	-4.419948E+00	-8.052227E-01
235	235	-3.818179E-01	-4.174987E+00	-3.914805E-02
236	236	-2.877881E-01	-3.481386E+00	7.447602E-01
237	237	-1.233348E-01	-2.430900E+00	1.445069E+00
238	238	1.373472E-03	-1.132848E+00	2.001865E+00
239	239	1.322843E-01	2.908657E-01	2.374274E+00
240	240	2.165489E-01	1.647168E+00	2.523534E+00
241	241	3.370512E-01	-4.586669E-01	-3.877831E-01
242	242	8.279822E-01	-2.616459E+00	1.215312E+00
243	243	1.180713E+00	-6.230216E+00	1.540857E+00
244	244	1.314655E+00	-1.013234E+01	1.321955E+00
245	245	1.110886E+00	-1.479502E+01	2.239132E+00
246	246	6.441233E-01	-1.968667E+01	4.397759E+00
247	247	1.482107E-01	-2.111599E+01	6.395585E+00
248	248	-3.030281E-01	-1.739697E+01	7.391751E+00
249	249	-3.503946E-01	-1.059005E+01	6.252768E+00
250	250	-3.981799E-01	-1.502742E+00	4.539634E+00
251	251	-3.802791E-01	9.188859E+00	2.254445E+00
252	252	-1.703870E-01	1.890920E+01	-3.691830E-01
253	253	1.412843E-01	2.458889E+01	-2.939070E+00
254	254	-3.899471E-02	2.642210E+01	-5.627230E+00

255	255	-4.405591E-01	2.411846E+01	-7.449386E+00
256	256	-6.447695E-01	1.893679E+01	-8.352354E+00
257	257	-8.364076E-01	1.328998E+01	-7.410023E+00
258	258	-1.024780E+00	8.103044E+00	-5.969453E+00
259	259	-9.008729E-01	3.657221E+00	-3.720977E+00
260	260	-3.061442E-01	1.031869E+00	-2.036730E+00
261	261	1.865904E-01	5.153672E+00	-5.097555E+00
262	262	8.226021E-01	-3.092982E+00	-2.815218E+00
263	263	9.505249E-01	-9.902615E+00	-9.680314E-01
264	264	1.403584E+00	-1.846001E+01	7.073926E-01
265	265	1.494474E+00	-2.799553E+01	2.715206E+00
266	266	7.920708E-01	-3.351271E+01	4.607245E+00
267	267	4.266829E-01	-3.581462E+01	6.296567E+00
268	268	3.267011E-01	-3.476705E+01	7.569812E+00
269	269	-2.819866E-01	-2.526629E+01	1.113561E+01
270	270	-6.378995E-01	-8.913559E+00	1.328051E+01
271	271	-2.482584E-01	9.631206E+00	1.029480E+01
272	272	-1.036165E-01	2.832922E+01	7.950765E+00
273	273	-2.369225E-01	4.511986E+01	3.842413E+00
274	274	-6.624814E-02	5.347202E+01	-2.049314E+00
275	275	-1.420085E-01	5.272419E+01	-6.745367E+00
276	276	-7.804305E-01	4.873845E+01	-1.080508E+01
277	277	-1.010033E+00	4.202811E+01	-1.297598E+01
278	278	-8.706440E-01	3.175483E+01	-1.395712E+01
279	279	-1.114304E+00	2.191235E+01	-1.223302E+01
280	280	-9.284318E-01	1.417817E+01	-7.282544E+00
281	281	-2.219494E+00	2.350057E+00	3.753187E-01
282	282	-1.323952E+00	1.737010E+00	8.472839E-01
283	283	-2.846719E-01	9.814030E-01	1.091469E+00
284	284	7.015134E-01	1.474296E-01	1.129324E+00
285	285	1.536382E+00	-6.432536E-01	1.089090E+00
286	286	2.295820E+00	-1.408354E+00	9.419163E-01
287	287	2.888032E+00	-2.092922E+00	7.520820E-01
288	288	3.087020E+00	-2.474222E+00	5.117209E-01
289	289	2.897309E+00	-2.562152E+00	1.782570E-01
290	290	2.432318E+00	-2.447160E+00	-1.011456E-01
291	291	1.780161E+00	-2.101973E+00	-4.015119E-01
292	292	1.006872E+00	-1.501236E+00	-6.237929E-01
293	293	1.046954E-01	-7.317783E-01	-7.766340E-01

294	294	-8.031296E-01	6.589304E-02	-9.081506E-01
295	295	-1.748175E+00	8.698806E-01	-1.081771E+00
296	296	-2.479731E+00	1.624657E+00	-1.131109E+00
297	297	-2.955818E+00	2.218145E+00	-1.021900E+00
298	298	-3.121441E+00	2.567103E+00	-8.068737E-01
299	299	-3.067842E+00	2.699782E+00	-4.396478E-01
300	300	-2.783680E+00	2.640616E+00	-5.760701E-02
301	301	-5.162161E+00	4.514723E+00	-5.120464E+00
302	302	1.102555E+00	-8.367173E-01	-3.490422E+00
303	303	8.002814E+00	-7.168021E+00	-1.873299E+00
304	304	1.431809E+01	-1.282544E+01	-3.239463E-01
305	305	1.863796E+01	-1.641303E+01	9.693504E-01
306	306	2.049697E+01	-1.844533E+01	2.299626E+00
307	307	1.938845E+01	-1.830250E+01	3.611729E+00
308	308	1.528324E+01	-1.467553E+01	4.777621E+00
309	309	9.477946E+00	-9.508509E+00	5.594986E+00
310	310	3.482699E+00	-4.212634E+00	6.089506E+00
311	311	-2.656725E+00	1.814105E+00	5.822481E+00
312	312	-8.478062E+00	7.882674E+00	4.434025E+00
313	313	-1.271614E+01	1.189745E+01	2.390211E+00
314	314	-1.532134E+01	1.479212E+01	2.972157E-01
315	315	-1.738581E+01	1.718618E+01	-2.001263E+00
316	316	-1.836613E+01	1.788799E+01	-4.104974E+00
317	317	-1.770544E+01	1.691426E+01	-5.824575E+00
318	318	-1.595876E+01	1.560419E+01	-6.858022E+00
319	319	-1.367316E+01	1.331669E+01	-7.252847E+00
320	320	-1.016512E+01	9.370799E+00	-6.287409E+00
321	321	-1.476222E+01	1.410849E+01	-1.244918E+01
322	322	-1.195378E+00	1.399011E+00	-1.031177E+01
323	323	1.233363E+01	-1.072019E+01	-7.091746E+00
324	324	2.336534E+01	-2.097227E+01	-3.823820E+00
325	325	3.133816E+01	-2.857539E+01	-6.682186E-01
326	326	3.413836E+01	-3.167860E+01	1.947419E+00
327	327	3.168857E+01	-3.088921E+01	4.034710E+00
328	328	2.540464E+01	-2.634258E+01	5.767938E+00
329	329	1.706476E+01	-1.823142E+01	7.341713E+00
330	330	7.906041E+00	-8.901742E+00	9.582350E+00
331	331	-1.792936E+00	1.213008E+00	1.031672E+01
332	332	-1.101504E+01	1.136230E+01	1.036581E+01

333	333	-1.922918E+01	1.957874E+01	9.367042E+00
334	334	-2.679218E+01	2.674575E+01	6.347692E+00
335	335	-3.319707E+01	3.288699E+01	2.979595E+00
336	336	-3.721091E+01	3.650277E+01	-1.097879E+00
337	337	-3.907328E+01	3.805344E+01	-5.653642E+00
338	338	-3.772018E+01	3.678882E+01	-9.812748E+00
339	339	-3.297911E+01	3.210292E+01	-1.240788E+01
340	340	-2.534906E+01	2.472818E+01	-1.282935E+01
341	341	-9.112136E-01	1.083234E-01	-1.575101E+00
342	342	1.087628E+00	1.896577E-01	-1.635157E+00
343	343	2.997329E+00	2.385589E-01	-1.521837E+00
344	344	4.667130E+00	2.920526E-01	-1.244487E+00
345	345	5.735370E+00	3.949179E-01	-9.639994E-01
346	346	6.129597E+00	4.948938E-01	-3.550940E-01
347	347	5.941139E+00	4.527649E-01	1.994811E-01
348	348	5.353179E+00	3.619013E-01	7.595085E-01
349	349	4.176663E+00	2.906923E-01	1.237156E+00
350	350	2.573962E+00	1.785365E-01	1.613059E+00
351	351	7.693161E-01	-4.460753E-02	1.825179E+00
352	352	-1.128442E+00	-2.614462E-01	1.816519E+00
353	353	-2.993488E+00	-3.902169E-01	1.574845E+00
354	354	-4.664232E+00	-4.415502E-01	1.110622E+00
355	355	-5.817860E+00	-4.829059E-01	6.657571E-01
356	356	-6.461004E+00	-4.973709E-01	3.747052E-02
357	357	-6.520532E+00	-3.893881E-01	-4.689728E-01
358	358	-5.953149E+00	-2.495297E-01	-9.237805E-01
359	359	-4.673181E+00	-1.352204E-01	-1.250588E+00
360	360	-2.855146E+00	-1.601707E-02	-1.464023E+00
361	361	-9.317032E+00	9.215591E-01	-7.058721E+00
362	362	1.469141E+00	1.360146E+00	-7.642478E+00
363	363	1.205222E+01	1.627497E+00	-7.278168E+00
364	364	2.103123E+01	1.382973E+00	-6.174455E+00
365	365	2.698683E+01	1.071947E+00	-4.457343E+00
366	366	2.948581E+01	7.674668E-01	-2.310216E+00
367	367	2.858475E+01	2.574276E-01	-1.759757E-01
368	368	2.468802E+01	-2.138384E-01	1.581591E+00
369	369	1.866525E+01	-3.429821E-01	3.047161E+00
370	370	1.136494E+01	-4.697062E-01	4.316647E+00
371	371	3.282848E+00	-5.906107E-01	5.254141E+00

372	372	-4.871584E+00	-5.473960E-01	5.641132E+00
373	373	-1.272913E+01	-5.252028E-01	5.816250E+00
374	374	-2.013098E+01	-7.724239E-01	5.500068E+00
375	375	-2.631591E+01	-9.410256E-01	4.641510E+00
376	376	-3.038029E+01	-8.951559E-01	2.938725E+00
377	377	-3.204714E+01	-9.089641E-01	8.305177E-01
378	378	-3.103659E+01	-7.363002E-01	-1.521440E+00
379	379	-2.673824E+01	-5.033345E-02	-3.635002E+00
380	380	-1.914331E+01	5.128025E-01	-5.720174E+00
381	381	-2.853288E+01	1.499240E+00	-1.063530E+01
382	382	-6.956106E+00	2.373330E+00	-1.328659E+01
383	383	1.454133E+01	2.046539E+00	-1.369640E+01
384	384	3.410402E+01	2.225782E+00	-1.227983E+01
385	385	4.535535E+01	2.206342E+00	-9.672165E+00
386	386	4.919709E+01	1.012893E+00	-6.146575E+00
387	387	4.761840E+01	4.062110E-01	-2.278828E+00
388	388	4.029473E+01	-5.520282E-01	1.201025E+00
389	389	3.026910E+01	-1.278038E+00	4.462221E+00
390	390	1.912858E+01	-8.168090E-01	5.665378E+00
391	391	5.922346E+00	-1.152826E+00	6.661548E+00
392	392	-6.341118E+00	-1.002364E+00	7.623723E+00
393	393	-1.731841E+01	-4.305486E-01	8.562785E+00
394	394	-2.960034E+01	-1.305355E+00	9.783122E+00
395	395	-4.142064E+01	-1.594514E+00	9.864168E+00
396	396	-5.161184E+01	-1.005375E+00	8.255876E+00
397	397	-5.941808E+01	-1.402324E+00	5.630480E+00
398	398	-6.182247E+01	-7.768722E-01	1.807286E+00
399	399	-5.747094E+01	4.575293E-01	-2.384311E+00
400	400	-4.693703E+01	6.042011E-01	-6.670198E+00
401	401	-5.399064E-01	5.896533E-01	-2.010695E-01
402	402	8.540597E-01	2.124643E+00	-8.004186E-01
403	403	2.248772E+00	2.981580E+00	-1.275790E+00
404	404	3.312264E+00	3.314804E+00	-1.591429E+00
405	405	3.932551E+00	3.389506E+00	-1.758399E+00
406	406	4.077889E+00	3.233094E+00	-1.796183E+00
407	407	3.696511E+00	2.941156E+00	-1.692082E+00
408	408	2.912192E+00	2.752511E+00	-1.384115E+00
409	409	1.935995E+00	2.508962E+00	-9.618799E-01
410	410	9.072226E-01	2.045884E+00	-4.366380E-01

411	411	-1.783207E-01	1.161772E+00	1.320582E-01
412	412	-1.282278E+00	-1.358243E-01	6.808833E-01
413	413	-2.252505E+00	-1.593165E+00	1.142957E+00
414	414	-2.934573E+00	-3.059388E+00	1.488373E+00
415	415	-3.311418E+00	-4.382942E+00	1.693089E+00
416	416	-3.634357E+00	-5.254108E+00	1.757074E+00
417	417	-3.712516E+00	-5.295926E+00	1.693844E+00
418	418	-3.254380E+00	-4.429709E+00	1.379061E+00
419	419	-2.540104E+00	-2.992180E+00	9.037787E-01
420	420	-1.641209E+00	-1.246393E+00	3.880681E-01
421	421	-7.171216E+00	-8.351804E+00	-4.045198E+00
422	422	2.029261E-01	8.383157E-02	-5.958392E+00
423	423	7.252651E+00	8.626456E+00	-7.305442E+00
424	424	1.328346E+01	1.568509E+01	-7.685552E+00
425	425	1.768877E+01	1.952476E+01	-7.254494E+00
426	426	1.990445E+01	2.026544E+01	-5.876074E+00
427	427	1.983048E+01	1.927394E+01	-3.969461E+00
428	428	1.786042E+01	1.735283E+01	-1.788048E+00
429	429	1.437685E+01	1.466917E+01	1.985651E-01
430	430	9.717132E+00	1.095928E+01	2.142829E+00
431	431	4.487079E+00	5.544202E+00	3.588936E+00
432	432	-1.050069E+00	-1.208177E+00	4.415159E+00
433	433	-6.864197E+00	-8.367805E+00	4.807160E+00
434	434	-1.254325E+01	-1.467300E+01	5.198283E+00
435	435	-1.744305E+01	-1.879216E+01	5.532079E+00
436	436	-2.061640E+01	-2.079995E+01	5.302392E+00
437	437	-2.206826E+01	-2.132329E+01	4.549571E+00
438	438	-2.140376E+01	-2.075173E+01	2.676326E+00
439	439	-1.825709E+01	-1.858301E+01	4.685363E-01
440	440	-1.348151E+01	-1.465436E+01	-1.810090E+00
441	441	-2.233819E+01	-2.020629E+01	-4.509782E+00
442	442	-6.879289E+00	-5.220888E+00	-8.710447E+00
443	443	9.447331E+00	9.966921E+00	-1.164504E+01
444	444	2.292340E+01	2.220326E+01	-1.280440E+01
445	445	3.013643E+01	2.972863E+01	-1.288709E+01
446	446	3.148148E+01	3.238761E+01	-1.123128E+01
447	447	2.981451E+01	3.209007E+01	-8.191390E+00
448	448	2.720291E+01	2.975357E+01	-4.373205E+00
449	449	2.385617E+01	2.485951E+01	-8.398619E-01

450	450	1.826514E+01	1.753762E+01	2.225412E+00
451	451	1.095268E+01	8.586853E+00	4.506574E+00
452	452	3.628134E-01	-1.935613E+00	6.103245E+00
453	453	-1.145308E+01	-1.209943E+01	7.290316E+00
454	454	-2.141659E+01	-2.082764E+01	8.364386E+00
455	455	-2.895588E+01	-2.766163E+01	8.562362E+00
456	456	-3.273546E+01	-3.287512E+01	8.833001E+00
457	457	-3.513909E+01	-3.729481E+01	8.790866E+00
458	458	-3.726024E+01	-3.977210E+01	7.181157E+00
459	459	-3.658949E+01	-3.827836E+01	3.907425E+00
460	460	-3.202982E+01	-3.138542E+01	-2.211785E-01
461	461	-4.204772E+01	-4.083180E+01	-4.745774E+00
462	462	-1.741415E+01	-1.812626E+01	-1.126439E+01
463	463	5.968153E+00	5.482754E+00	-1.647465E+01
464	464	2.609277E+01	2.638822E+01	-1.914716E+01
465	465	3.717814E+01	3.882809E+01	-1.963275E+01
466	466	4.097425E+01	4.397867E+01	-1.816524E+01
467	467	4.178056E+01	4.354415E+01	-1.383589E+01
468	468	3.912520E+01	4.023084E+01	-8.074570E+00
469	469	3.447596E+01	3.372252E+01	-2.221669E+00
470	470	2.581411E+01	2.457420E+01	2.315590E+00
471	471	1.328750E+01	1.259574E+01	5.299853E+00
472	472	-5.992298E-01	-1.152402E+00	7.681865E+00
473	473	-1.488914E+01	-1.440806E+01	9.660898E+00
474	474	-2.591325E+01	-2.607702E+01	1.157854E+01
475	475	-3.568273E+01	-3.615331E+01	1.282751E+01
476	476	-4.406828E+01	-4.538807E+01	1.365129E+01
477	477	-5.187894E+01	-5.415613E+01	1.510103E+01
478	478	-6.096671E+01	-6.198665E+01	1.424188E+01
479	479	-6.310579E+01	-6.286651E+01	9.975283E+00
480	480	-5.803575E+01	-5.651860E+01	3.491128E+00
481	481	-7.378713E+01	-7.236709E+01	-2.734523E+00
482	482	-4.207059E+01	-4.238411E+01	-1.379419E+01
483	483	-5.627772E+00	-6.428089E+00	-2.202931E+01
484	484	2.560614E+01	2.685150E+01	-2.866521E+01
485	485	4.548025E+01	4.688249E+01	-3.029126E+01
486	486	5.285998E+01	5.537886E+01	-2.711197E+01
487	487	5.305344E+01	5.440946E+01	-2.043509E+01
488	488	4.998321E+01	5.071193E+01	-1.211744E+01

489	489	4.343952E+01	4.295227E+01	-3.646940E+00
490	490	3.278153E+01	3.244435E+01	1.996939E+00
491	491	1.800058E+01	1.707507E+01	4.522001E+00
492	492	8.683429E-01	-9.466121E-01	6.279616E+00
493	493	-1.560721E+01	-1.731925E+01	7.993538E+00
494	494	-3.078520E+01	-3.154220E+01	9.965188E+00
495	495	-4.434259E+01	-4.374712E+01	1.443125E+01
496	496	-5.652750E+01	-5.702047E+01	1.912438E+01
497	497	-7.027136E+01	-7.213649E+01	2.312531E+01
498	498	-8.563768E+01	-8.777700E+01	2.449734E+01
499	499	-9.491242E+01	-9.485636E+01	1.946297E+01
500	500	-9.234970E+01	-9.085438E+01	9.654020E+00
501	501	-1.418564E+02	-1.356858E+02	-3.840816E+00
502	502	-8.922111E+01	-9.451502E+01	-2.174505E+01
503	503	-2.600244E+01	-3.485593E+01	-3.325850E+01
504	504	2.998767E+01	2.514555E+01	-3.983847E+01
505	505	5.937964E+01	6.581387E+01	-4.278202E+01
506	506	6.493090E+01	7.092667E+01	-3.971068E+01
507	507	5.908774E+01	6.147953E+01	-2.870894E+01
508	508	5.159465E+01	4.874509E+01	-1.591706E+01
509	509	5.048433E+01	4.903896E+01	-5.511293E+00
510	510	4.571946E+01	4.611217E+01	7.340165E-01
511	511	3.043934E+01	3.086545E+01	4.140387E+00
512	512	4.884420E+00	1.990567E+00	6.689782E+00
513	513	-2.209013E+01	-2.678333E+01	9.192606E+00
514	514	-3.959606E+01	-4.100100E+01	1.118096E+01
515	515	-5.278506E+01	-4.874865E+01	1.612747E+01
516	516	-6.432376E+01	-5.996871E+01	2.441483E+01
517	517	-8.361389E+01	-8.847712E+01	3.336312E+01
518	518	-1.145368E+02	-1.219281E+02	3.831541E+01
519	519	-1.438972E+02	-1.464582E+02	3.355417E+01
520	520	-1.600287E+02	-1.506313E+02	1.736279E+01
521	521	3.898343E-02	1.612196E+00	1.312714E+00
522	522	1.147234E-02	1.778282E+00	8.992140E-01
523	523	7.378819E-05	1.068962E+00	4.285000E-01
524	524	-1.335861E-02	5.375114E-02	-8.128843E-02
525	525	-2.046171E-02	-8.781641E-01	-6.391732E-01
526	526	-7.904173E-02	-9.444236E-01	-1.198072E+00
527	527	-1.952380E-01	-4.983475E-02	-1.739377E+00

528	528	-3.442683E-01	1.320772E+00	-2.043973E+00
529	529	-4.640165E-01	2.715060E+00	-2.118347E+00
530	530	-5.170716E-01	3.828043E+00	-1.999797E+00
531	531	-4.510275E-01	3.886222E+00	-1.618101E+00
532	532	-2.428174E-01	2.563315E+00	-1.050134E+00
533	533	-2.167576E-03	4.613411E-01	-3.720485E-01
534	534	2.319727E-01	-1.769616E+00	3.190596E-01
535	535	4.105784E-01	-3.835942E+00	9.413907E-01
536	536	4.793099E-01	-4.980374E+00	1.426773E+00
537	537	4.421765E-01	-4.691761E+00	1.742613E+00
538	538	3.378570E-01	-3.206545E+00	1.824734E+00
539	539	2.183140E-01	-1.300069E+00	1.771651E+00
540	540	1.083187E-01	5.021111E-01	1.592084E+00
541	541	2.159077E-01	-1.162381E+01	-2.000167E+00
542	542	-3.109676E-02	-1.754108E+00	-4.121065E+00
543	543	-1.359245E-01	7.913572E+00	-6.038959E+00
544	544	-2.213113E-01	1.600495E+01	-7.252691E+00
545	545	-3.628623E-01	2.138248E+01	-7.586086E+00
546	546	-3.371744E-01	2.463804E+01	-7.247621E+00
547	547	-3.500211E-01	2.613821E+01	-5.932566E+00
548	548	-3.944117E-01	2.554634E+01	-3.686692E+00
549	549	-2.668639E-01	2.272280E+01	-1.915896E+00
550	550	-2.250740E-01	1.659397E+01	2.063898E-01
551	551	-1.923198E-01	8.685647E+00	2.337260E+00
552	552	-7.789539E-02	-9.220168E-02	4.550578E+00
553	553	-8.682039E-02	-9.391549E+00	4.886942E+00
554	554	3.208248E-02	-1.686701E+01	5.123112E+00
555	555	2.082912E-01	-2.205691E+01	5.142944E+00
556	556	2.561879E-01	-2.623675E+01	4.635656E+00
557	557	4.243835E-01	-2.862565E+01	5.792055E+00
558	558	5.433990E-01	-2.872862E+01	4.204047E+00
559	559	4.550265E-01	-2.610386E+01	2.326848E+00
560	560	3.780277E-01	-2.021704E+01	2.038054E-01
561	561	6.823584E-01	-2.910326E+01	-8.283353E-01
562	562	1.250466E-01	-1.084809E+01	-5.659378E+00
563	563	-2.797457E-01	8.336296E+00	-9.702525E+00
564	564	-6.023383E-01	2.279717E+01	-1.204067E+01
565	565	-8.813198E-01	3.517706E+01	-1.292734E+01
566	566	-4.217217E-01	4.114032E+01	-1.240054E+01

567	567	-2.835133E-01	4.442493E+01	-1.119370E+01
568	568	-1.643212E-01	4.349861E+01	-7.384044E+00
569	569	-2.250688E-01	3.666533E+01	-3.540530E+00
570	570	-5.967380E-01	2.767492E+01	-1.379985E-01
571	571	-3.748383E-01	1.424221E+01	3.299390E+00
572	572	-3.658860E-01	-3.787143E-01	5.291898E+00
573	573	-6.390825E-02	-1.402921E+01	6.827296E+00
574	574	3.500665E-01	-2.597424E+01	8.336404E+00
575	575	2.879144E-01	-3.523782E+01	9.048426E+00
576	576	4.213153E-01	-4.350786E+01	8.873933E+00
577	577	3.085759E-01	-4.994472E+01	7.416838E+00
578	578	4.017353E-01	-5.348608E+01	8.831389E+00
579	579	7.469515E-01	-5.199392E+01	5.955623E+00
580	580	7.293134E-01	-4.230357E+01	2.209682E+00
581	581	6.454671E-01	-5.698227E+01	7.870924E-01
582	582	1.345485E-01	-2.948475E+01	-6.792776E+00
583	583	-4.614216E-01	-6.787411E-01	-1.306364E+01
584	584	-1.008310E+00	2.584788E+01	-1.746678E+01
585	585	-6.697445E-01	4.548679E+01	-1.917941E+01
586	586	-8.020674E-01	5.554629E+01	-1.887429E+01
587	587	-3.044690E-01	6.024209E+01	-1.769663E+01
588	588	-2.180484E-01	5.803867E+01	-1.250814E+01
589	589	-5.840894E-01	5.059649E+01	-6.515288E+00
590	590	-4.430470E-01	3.780871E+01	-5.908580E-01
591	591	-6.415792E-01	2.044039E+01	3.594049E+00
592	592	-2.294974E-01	1.559430E+00	6.390918E+00
593	593	-5.601280E-02	-1.697005E+01	9.003090E+00
594	594	-1.118742E-01	-3.262327E+01	1.131452E+01
595	595	3.064421E-01	-4.685567E+01	1.335909E+01
596	596	1.736030E-01	-6.009245E+01	1.403493E+01
597	597	4.993132E-01	-7.284586E+01	1.292052E+01
598	598	8.111209E-01	-8.295805E+01	1.613092E+01
599	599	1.003651E+00	-8.453876E+01	1.193192E+01
600	600	1.422736E+00	-7.545482E+01	7.976017E+00
601	601	1.394140E+00	-9.960495E+01	4.946677E+00
602	602	-2.811145E-01	-6.320101E+01	-6.694729E+00
603	603	-1.114659E+00	-1.919258E+01	-1.791907E+01
604	604	-9.775018E-01	2.400526E+01	-2.552781E+01
605	605	-1.438869E+00	5.293655E+01	-2.921011E+01

606	606	-6.727673E-01	6.968259E+01	-2.777754E+01
607	607	-4.867053E-01	7.406271E+01	-2.508182E+01
608	608	-2.687016E-01	7.303573E+01	-1.829378E+01
609	609	-2.292467E-01	6.559335E+01	-1.009824E+01
610	610	-1.059463E+00	5.009367E+01	-1.760007E-01
611	611	-3.915846E-01	2.834416E+01	3.807223E+00
612	612	-1.946148E-01	1.646196E+00	5.628490E+00
613	613	-1.185998E-01	-2.310879E+01	7.665459E+00
614	614	-3.023663E-02	-3.981978E+01	9.365329E+00
615	615	-3.199692E-01	-5.864501E+01	1.288051E+01
616	616	3.115019E-01	-7.453542E+01	1.825109E+01
617	617	5.209811E-01	-9.859718E+01	2.034186E+01
618	618	8.550309E-01	-1.163530E+02	2.340391E+01
619	619	1.980705E+00	-1.279916E+02	2.062533E+01
620	620	1.492407E+00	-1.220430E+02	1.659362E+01
621	621	2.938219E-01	-1.755911E+02	7.912305E+00
622	622	-6.641753E-01	-1.326273E+02	-1.209005E+01
623	623	-1.323309E+00	-6.141105E+01	-2.921183E+01
624	624	-1.500015E+00	1.562923E+01	-3.436897E+01
625	625	-1.628096E+00	7.339311E+01	-4.012180E+01
626	626	-1.186756E+00	9.269778E+01	-3.958095E+01
627	627	5.127231E-02	8.664128E+01	-3.368206E+01
628	628	-4.328607E-01	7.500925E+01	-2.397735E+01
629	629	-8.386185E-01	7.315052E+01	-1.195308E+01
630	630	-9.443981E-01	6.887305E+01	-1.586617E+00
631	631	-4.634561E-01	4.446909E+01	3.188387E+00
632	632	1.560083E-01	4.503335E+00	5.771604E+00
633	633	1.127573E-01	-3.116202E+01	8.353226E+00
634	634	-3.507766E-01	-5.235251E+01	1.073125E+01
635	635	-8.272501E-01	-6.035337E+01	1.539424E+01
636	636	-3.313418E-01	-8.330393E+01	2.224358E+01
637	637	5.415659E-01	-1.209050E+02	2.851746E+01
638	638	2.277126E+00	-1.661915E+02	3.798335E+01
639	639	2.189291E+00	-1.922391E+02	3.556039E+01
640	640	1.914800E+00	-1.977878E+02	2.345848E+01
641	641	2.930505E-01	1.355104E+00	-2.790396E-01
642	642	-1.326076E+00	2.554313E+00	-7.564891E-01
643	643	-2.654421E+00	2.946386E+00	-1.212903E+00
644	644	-3.507052E+00	2.962914E+00	-1.513381E+00

645	645	-4.044812E+00	2.869340E+00	-1.678293E+00
646	646	-4.291449E+00	2.536499E+00	-1.655928E+00
647	647	-3.957835E+00	2.110561E+00	-1.483596E+00
648	648	-3.163752E+00	2.035626E+00	-1.174716E+00
649	649	-2.207296E+00	2.015617E+00	-7.069047E-01
650	650	-1.168510E+00	1.646010E+00	-1.730542E-01
651	651	6.248371E-02	8.161591E-01	2.823090E-01
652	652	1.398102E+00	-2.555434E-01	7.013086E-01
653	653	2.528210E+00	-1.531602E+00	1.037530E+00
654	654	3.344927E+00	-3.069734E+00	1.362651E+00
655	655	3.876936E+00	-4.404454E+00	1.558429E+00
656	656	4.179519E+00	-4.926913E+00	1.575745E+00
657	657	4.096543E+00	-4.579711E+00	1.426932E+00
658	658	3.570711E+00	-3.659050E+00	1.123041E+00
659	659	2.744620E+00	-2.224686E+00	7.396529E-01
660	660	1.697066E+00	-4.754490E-01	2.473986E-01
661	661	7.104078E+00	-8.354649E+00	-4.026063E+00
662	662	-3.283389E-01	4.900830E-01	-5.912685E+00
663	663	-7.863234E+00	9.482256E+00	-7.273746E+00
664	664	-1.423907E+01	1.618103E+01	-7.653409E+00
665	665	-1.839230E+01	1.939716E+01	-7.098785E+00
666	666	-2.036524E+01	1.921027E+01	-5.614462E+00
667	667	-2.023006E+01	1.791790E+01	-3.697165E+00
668	668	-1.796262E+01	1.631739E+01	-1.571910E+00
669	669	-1.444447E+01	1.422165E+01	3.343842E-01
670	670	-9.872586E+00	1.120914E+01	2.175487E+00
671	671	-4.444033E+00	5.754384E+00	3.588094E+00
672	672	1.164862E+00	-1.437594E+00	4.411584E+00
673	673	7.288964E+00	-9.100191E+00	4.844314E+00
674	674	1.328251E+01	-1.547606E+01	5.177077E+00
675	675	1.788165E+01	-1.883866E+01	5.348407E+00
676	676	2.118063E+01	-2.016308E+01	5.076183E+00
677	677	2.250951E+01	-2.001940E+01	4.223213E+00
678	678	2.148304E+01	-1.951959E+01	2.431977E+00
679	679	1.868992E+01	-1.814032E+01	3.158978E-01
680	680	1.377647E+01	-1.451157E+01	-1.899012E+00
681	681	2.260757E+01	-1.904027E+01	-4.510880E+00
682	682	7.112353E+00	-3.890349E+00	-8.625481E+00
683	683	-9.915365E+00	1.097998E+01	-1.155169E+01

684	684	-2.411945E+01	2.233762E+01	-1.287431E+01
685	685	-3.189667E+01	2.915396E+01	-1.266485E+01
686	686	-3.280736E+01	3.114861E+01	-1.085032E+01
687	687	-3.063956E+01	3.126182E+01	-7.761286E+00
688	688	-2.714207E+01	2.902458E+01	-4.069162E+00
689	689	-2.334012E+01	2.462587E+01	-7.088036E-01
690	690	-1.812908E+01	1.738551E+01	2.285476E+00
691	691	-1.101208E+01	7.875158E+00	4.555730E+00
692	692	-7.101109E-01	-2.673508E+00	6.127674E+00
693	693	1.123089E+01	-1.278887E+01	7.320670E+00
694	694	2.199972E+01	-2.096230E+01	8.504843E+00
695	695	2.991389E+01	-2.730898E+01	8.292381E+00
696	696	3.383296E+01	-3.218690E+01	8.509121E+00
697	697	3.609303E+01	-3.671409E+01	8.305563E+00
698	698	3.745124E+01	-3.919152E+01	6.840807E+00
699	699	3.686146E+01	-3.797798E+01	3.703280E+00
700	700	3.232585E+01	-3.073176E+01	-3.000627E-01
701	701	4.311439E+01	-3.961726E+01	-4.637622E+00
702	702	1.792502E+01	-1.659655E+01	-1.110454E+01
703	703	-7.302927E+00	7.467315E+00	-1.642518E+01
704	704	-2.839180E+01	2.735135E+01	-1.935225E+01
705	705	-4.006102E+01	3.915313E+01	-1.944187E+01
706	706	-4.283956E+01	4.299897E+01	-1.762798E+01
707	707	-4.203297E+01	4.223163E+01	-1.310377E+01
708	708	-3.881414E+01	3.893429E+01	-7.679270E+00
709	709	-3.406071E+01	3.323533E+01	-2.103589E+00
710	710	-2.610005E+01	2.452370E+01	2.343951E+00
711	711	-1.386572E+01	1.228362E+01	5.313476E+00
712	712	3.600186E-01	-1.931977E+00	7.664449E+00
713	713	1.482422E+01	-1.538513E+01	9.725126E+00
714	714	2.692502E+01	-2.664812E+01	1.208978E+01
715	715	3.691711E+01	-3.646090E+01	1.256278E+01
716	716	4.480489E+01	-4.483640E+01	1.323232E+01
717	717	5.260601E+01	-5.378462E+01	1.447431E+01
718	718	6.088971E+01	-6.109059E+01	1.372224E+01
719	719	6.421319E+01	-6.280648E+01	9.796552E+00
720	720	5.977101E+01	-5.617172E+01	3.449500E+00
721	721	7.607699E+01	-7.183199E+01	-2.012629E+00
722	722	4.198639E+01	-3.939446E+01	-1.499197E+01

723	723	3.269233E+00	-2.513077E+00	-2.344524E+01
724	724	-2.945116E+01	2.974092E+01	-2.961638E+01
725	725	-5.051811E+01	4.958800E+01	-2.817811E+01
726	726	-5.475818E+01	5.403368E+01	-2.552357E+01
727	727	-5.278719E+01	5.278037E+01	-1.945325E+01
728	728	-4.984951E+01	4.837817E+01	-1.155502E+01
729	729	-4.339988E+01	4.320388E+01	-3.530802E+00
730	730	-3.328867E+01	3.277216E+01	1.913180E+00
731	731	-1.833107E+01	1.710496E+01	4.467700E+00
732	732	-1.180063E+00	-2.051893E+00	6.360663E+00
733	733	1.588510E+01	-1.951542E+01	7.995125E+00
734	734	3.230161E+01	-3.251486E+01	1.064570E+01
735	735	4.531085E+01	-4.445818E+01	1.442040E+01
736	736	5.659326E+01	-5.580732E+01	1.860273E+01
737	737	7.032789E+01	-7.207480E+01	2.252981E+01
738	738	8.642565E+01	-8.767121E+01	2.383270E+01
739	739	9.767997E+01	-9.644268E+01	1.932883E+01
740	740	9.532738E+01	-9.146564E+01	1.031133E+01
741	741	1.428582E+02	-1.324749E+02	-4.664063E+00
742	742	8.803872E+01	-8.867355E+01	-2.502916E+01
743	743	2.260954E+01	-2.866379E+01	-3.487890E+01
744	744	-3.534678E+01	3.146174E+01	-4.101824E+01
745	745	-6.346340E+01	6.604756E+01	-4.220612E+01
746	746	-6.790339E+01	7.063123E+01	-3.577580E+01
747	747	-5.927461E+01	5.730087E+01	-2.656637E+01
748	748	-5.101745E+01	4.930598E+01	-1.602401E+01
749	749	-5.189657E+01	4.946549E+01	-5.293611E+00
750	750	-4.532216E+01	4.768331E+01	5.251949E-01
751	751	-3.134919E+01	2.912634E+01	3.972243E+00
752	752	-3.732715E+00	-1.904763E+00	7.063986E+00
753	753	2.284677E+01	-2.815957E+01	9.225388E+00
754	754	3.994060E+01	-4.117032E+01	1.191141E+01
755	755	5.292362E+01	-4.658116E+01	1.632427E+01
756	756	6.290094E+01	-6.193761E+01	2.408083E+01
757	757	8.568152E+01	-9.029045E+01	3.247380E+01
758	758	1.169445E+02	-1.249974E+02	3.775993E+01
759	759	1.478904E+02	-1.471921E+02	3.354505E+01
760	760	1.634487E+02	-1.513181E+02	2.052906E+01

C.7 Stress Vs Cycle Data

******** STRESS VERSUS CYCLE DATA ********

SN TYPE	THICKNESS CORRECTION MINIMUM IN	POWER	SPLASH ZONE	ENDURANCE LIMIT	**** S-N DATA ***** STRESS KSI	CYCLES	********** COMMENTS
WJT	0.625	0.250	ABOVE	NO	96.24	1.000E+04	WELDED JOINT STANDARD
					9.62	1.000E+07	
					3.84	1.000E+09	
WJT	0.625	0.250	BELOW	NO	76.38	1.000E+04	WELDED JOINT STANDARD
					13.66	1.747E+06	
					3.84	1.000E+09	

******** STRESS VERSUS CYCLE DATA ********

SN TYPE	THICKNESS CORRECTION MINIMUM IN	POWER	SPLASH ZONE	ENDURANCE LIMIT	**** S-N DATA ***** STRESS KSI	CYCLES	********** COMMENTS
WJ2	0.625	0.150	ABOVE	NO	120.29	1.000E+04	WELDED JOINT WITH WELD TOE BURR GRIND
					12.03	1.000E+07	
					4.80	1.000E+09	
WJ2	0.625	0.150	BELOW	NO	95.48	1.000E+04	WELDED JOINT WITH WELD TOE BURR GRIND
					17.08	1.747E+06	
					4.80	1.000E+09	

C.8 Fatigue Result Tubular Connection

SN Curve WJT

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER GRUP ID	TYPE ID	ORIGINAL OD (IN)	WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	* STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
202	202- 206	B02 TUB	8.62	0.625	K	BRC	37.92	-1.20	3.26	3.14	2.54	3.64	.49209-5	L	4064330.		
202	201- 202	B11 TUB	16.00	1.000	K	CHD	37.92		4.08	3.59	2.50	4.21	.15121-4	L	1322669.		
202	202- 209	B02 TUB	8.62	0.625	K	BRC	37.92	-1.20	3.20	3.09	2.54	3.67	.15425-4	R	1296591.		
202	202- 203	B11 TUB	16.00	1.000	K	CHD	37.92		3.92	3.47	2.50	4.25	.50951-4	R	392536.0		
206	202- 206	B02 TUB	8.62	0.625	K	BRC	37.32	-0.48	3.90	3.56	2.54	3.14	.91108-4	TL	219520.3		
206	204- 206	B11 TUB	16.00	1.000	K	CHD	37.32		5.32	4.53	2.50	3.64	.45506-3	TL	43950.08		
206	206- 207	B02 TUB	8.62	0.625	K	BRC	37.29	-0.48	4.09	3.78	2.52	3.15	.98189-4	L	203689.9		
206	206- 210	B11 TUB	16.00	1.000	K	CHD	37.29		5.70	4.77	2.50	3.65	.39540-3	BR	50581.61		

209	202- 209	B02	TUB	8.62	0.625	K	BRC	37.32	-0.48	3.70	3.40	2.54	3.22	.77306-4	R	258712.4	
209	205- 209	B11	TUB	16.00	1.000	K	CHD	37.32		4.91	4.24	2.50	3.73	.38063-3	R	52544.72	
209	208- 209	B02	TUB	8.62	0.625	K	BRC	37.29	-0.48	3.97	3.69	2.53	3.19	.29381-3	L	68072.09	
209	209- 213	B11	TUB	16.00	1.000	K	CHD	37.29		5.46	4.60	2.50	3.70	.13251-2	L	15093.73	
210	210-20C7	V03	TUB	16.00	0.500	T	BRC	36.27		5.82	2.50	2.50	2.50	.64025-4	T	312377.3	

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	* STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
210	206- 210	B11	TUB	16.00	1.000	T	CHD	36.27		10.49	2.50	2.50	2.60	.21866-3	T	91468.25		
213	213-20C5	V03	TUB	16.00	0.500	T	BRC	36.27		5.82	2.50	2.50	2.50	.53432-4	T	374308.3		
213	213- 215	B11	TUB	16.00	1.000	T	CHD	36.27		10.49	2.50	2.50	2.60	.10596-3	T	188747.0		
216	216-R003	RS1	TUB	12.75	0.375	T	BRC	36.39		5.00	5.14	2.50	4.16	.13488-3	L	148282.0		

216	216- 222	B01	TUB	16.00	0.750	T	CHD	36.39		8.63	4.38	2.50	4.97	.32597-3	L	61354.85			
222	222-204G	CG1	TUB	16.00	0.438	Y	BRC	36.63		6.25	2.51	2.50	2.50	.28863-3	T	69292.51			
222	222- 224	B01	TUB	16.00	0.750	Y	CHD	36.63		11.27	2.50	2.50	3.22	.20745-2	T	9640.904			
223	223-205G	CG1	TUB	16.00	0.438	Y	BRC	36.59		6.24	2.51	2.50	2.50	.61272-3	TR	32641.20			
223	223- 227	B01	TUB	16.00	0.750	Y	CHD	36.59		11.25	2.50	2.50	3.22	.39483-2	T	5065.455			
228	228-204G	CG1	TUB	16.00	0.438	Y	BRC	36.63		6.25	2.51	2.50	2.50	.82232-3	TR	24321.44			
228	224- 228	B01	TUB	16.00	0.750	Y	CHD	36.63		11.26	2.50	2.50	3.21	.58181-2	T	3437.567			
229	229-205G	CG1	TUB	16.00	0.438	Y	BRC	36.63		6.25	2.51	2.50	2.50	.65484-3	TL	30541.93			

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	* STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
229	227- 229	B01	TUB	16.00	0.750	Y	CHD	36.63		11.26	2.50	2.50	3.21	.38710-2	TL	5166.659		

310	310- 314	C02	TUB	8.62	0.750	K	BRC	30.57	-0.22	2.74	2.73	2.62	3.68	.25671-4	R	779090.8
310	309- 310	C11	TUB	16.00	1.125	K	CHD	30.57		2.90	2.86	2.50	4.41	.61631-4	R	324509.5
310	310- 346	C02	TUB	8.62	0.750	K	BRC	30.57	-0.22	2.73	2.71	2.62	3.67	.44860-4	L	445832.0
310	310- 311	C11	TUB	16.00	1.125	K	CHD	30.57		2.92	2.88	2.50	4.41	.12367-3	L	161725.1
101L	101L-M024	A01	TUB	16.00	0.750	T	BRC	44.47		3.08	8.78	2.85	5.75	.36107-2	R	5539.133
101L	101L- 101	L01	TUB	40.00	1.250	T	CHD	44.47		4.61	9.69	2.82	6.24	.0110526	R	1809.534
101L	101L-M044	A01	TUB	16.00	0.750	Y	BRC	44.47		3.08	8.59	2.86	5.66	.66388-2	L	3012.596
101L	101L- 101	L01	TUB	40.00	1.250	Y	CHD	44.47		4.60	9.58	2.80	6.13	.0213436	L	937.0491
102L	102L-M045	A01	TUB	16.00	0.750	Y	BRC	44.47		3.08	8.59	2.86	5.66	.66520-2	R	3006.617
102L	102L- 102	L01	TUB	40.00	1.250	Y	CHD	44.47		4.60	9.58	2.80	6.13	.0210434	R	950.4160
102L	M038-102L	A01	TUB	16.00	0.750	T	BRC	44.47		3.08	8.78	2.85	5.75	.56665-2	L	3529.541
102L	102L- 102	L01	TUB	40.00	1.250	T	CHD	44.47		4.61	9.69	2.82	6.24	.0174152	L	1148.423

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	* STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
103L	M176-103L	A01	TUB	16.00	0.750	T	BRC	43.86		3.07	8.83	2.85	5.78	.0557765	L	358.5742		
103L	003L-103L	L00	TUB	40.00	1.250	T	CHD	43.86		4.59	9.73	2.83	6.27	.1645235	L	121.5632		
103L	M177-103L	A01	TUB	16.00	0.750	T	BRC	43.86		3.07	8.83	2.85	5.78	.0193272	R	1034.813		
103L	003L-103L	L00	TUB	40.00	1.250	T	CHD	43.86		4.59	9.73	2.83	6.27	.0578126	R	345.9456		
201L	201L- 201	B01	TUB	16.00	0.750	K	BRC	72.87	10.26	4.89	7.22	2.85	5.72	.69935-3	TL	28597.91		
201L	201L-20C1	L03	TUB	40.00	1.250	K	CHD	72.87		6.13	7.68	2.82	6.20	.18066-2	TL	11070.66		
201L	201L- 204	B01	TUB	16.00	0.750	TK	BRC	72.87	10.33	4.82	6.23	2.92	5.69	.88103-3	R	22700.65		
201L	201L-20C1	L03	TUB	40.00	1.250	TK	CHD	72.87		5.63	6.59	2.99	6.17	.23807-2	R	8400.814		
201L	201L-M031	V01	TUB	16.00	0.625	K	BRC	72.87	10.26	3.00	2.79	2.95	2.81	.10030-2	T	19939.85		
201L	101-201L	L02	TUB	40.00	1.250	K	CHD	72.87		3.39	3.24	2.50	2.78	.39033-2	T	5123.917		
201L	M112-201L	V01	TUB	16.00	0.625	TK	BRC	72.87	10.33	2.82	2.73	2.94	2.62	.31069-2	T	6437.189		
201L	101-201L	L02	TUB	40.00	1.250	TK	CHD	72.87		3.18	3.13	2.50	2.61	.0125800	T	1589.822		

201L 201L-20C8 V02 TUB 20.00 0.500 TK BRC 72.87 10.33 2.59 2.58 2.84 3.04 .10616-2 TL 18839.12

201L 201L-20C1 L03 TUB 40.00 1.250 TK CHD 72.87 2.60 2.63 2.50 2.94 .24733-2 L 8086.244

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
201X	201X-P129	RP0	TUB	12.75	0.750	Y	BRC	17.10		3.33	6.32	2.74	5.29	.16441-3	R	121646.8		
201X	201X-203X	V22	TUB	20.00	0.875	Y	CHD	17.10		5.80	9.61	3.04	7.81	.14054-2	R	14230.79		
201X	201X-208X	V13	TUB	16.00	0.625	Y	BRC	17.10		3.28	3.21	2.70	2.96	.84353-4	L	237098.7		
201X	201X-203X	V22	TUB	20.00	0.875	Y	CHD	17.10		4.72	5.18	2.50	4.32	.86407-3	L	23146.21		
201X	20C7-201X	V13	TUB	16.00	0.625	Y	BRC	17.10		3.24	3.22	2.70	2.95	.12617-3	R	158511.1		
201X	202X-201X	V22	TUB	20.00	0.875	Y	CHD	17.10		4.62	5.22	2.50	4.29	.12718-2	R	15726.15		
202L	203-202L	B01	TUB	16.00	0.750	TK	BRC	72.87	4.62	4.35	6.38	2.92	5.87	.68767-3	R	29083.84		
202L	202L-20C2	L03	TUB	40.00	1.250	TK	CHD	72.87		5.24	6.59	3.05	6.37	.17917-2	R	11162.50		

202L	202L- 205	B01	TUB	16.00	0.750	K	BRC	72.87	10.97	4.90	6.94	2.86	5.63	.22784-2	T	8777.952
202L	202L-20C2	L03	TUB	40.00	1.250	K	CHD	72.87		6.06	7.45	2.80	6.11	.51975-2	T	3847.980
202L	202L-M119	V01	TUB	16.00	0.625	K	BRC	72.87	10.97	2.95	2.82	2.94	2.86	.14180-2	T	14104.29
202L	102-202L	L02	TUB	40.00	1.250	K	CHD	72.87		3.37	3.31	2.50	2.83	.61562-2	T	3248.758
202L	M031-202L	V01	TUB	16.00	0.625	TK	BRC	72.87	4.62	2.86	2.70	2.95	2.65	.10132-2	T	19740.38
202L	102-202L	L02	TUB	40.00	1.250	TK	CHD	72.87		3.16	3.06	2.50	2.64	.37902-2	T	5276.703

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER	GRUP	TYPE	ORIGINAL OD	ORIGINAL WT	JNT	MEM	CHORD LEN.	GAP *	STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD	REQUIRED WT
	ID	ID		(IN)	(IN)	TYP	TYP	(FT)	(IN)								(IN)	(IN)
202L	202L-20C4	V02	TUB	20.00	0.500	TK	BRC	72.87	4.62	2.58	2.59	2.84	3.53	.51162-2	BR	3909.181		
202L	202L-20C2	L03	TUB	40.00	1.250	TK	CHD	72.87		2.59	2.63	2.50	3.33	.90117-2	R	2219.339		

203L	228-203L	B01	TUB	16.00	0.750	K	BRC	71.88	9.36	5.06	7.01	2.85	5.74	.93190-2	L	2146.145
203L	103-203L	L02	TUB	40.00	1.250	K	CHD	71.88		6.15	7.45	2.83	6.22	.0255032	L	784.2142
203L	229-203L	B01	TUB	16.00	0.750	TK	BRC	71.88	9.74	4.66	6.54	2.85	5.87	.24421-2	R	8189.690

203L	103-203L	L02	TUB	40.00	1.250	TK	CHD	71.88		5.60	6.86	2.83	6.36	.65958-2	R	3032.230
203L	203L-M112	V01	TUB	16.00	0.625	K	BRC	71.88	9.36	3.00	2.74	2.96	2.80	.82492-2	T	2424.492
203L	103-203L	L02	TUB	40.00	1.250	K	CHD	71.88		3.34	3.14	2.50	2.78	.0311813	T	641.4100
203L	M119-203L	V01	TUB	16.00	0.625	TK	BRC	71.88	9.74	2.86	2.67	2.96	2.61	.25940-2	T	7710.086
203L	103-203L	L02	TUB	40.00	1.250	TK	CHD	71.88		3.16	3.02	2.50	2.61	.98254-2	T	2035.545
203L	203L-20C6	V02	TUB	20.00	0.500	TK	BRC	71.88	9.74	2.59	2.65	2.74	3.43	.37301-3	R	53618.36
203L	203L-20C3	L03	TUB	40.00	1.250	TK	CHD	71.88		2.77	2.85	2.50	3.16	.76957-3	R	25988.53
204X	P029-204X	RP0	TUB	12.75	0.750	Y	BRC	22.32		3.81	5.18	2.85	4.37	.13378-3	R	149496.6
204X	204X-206X	V22	TUB	20.00	0.875	Y	CHD	22.32		6.54	8.93	2.80	6.45	.11992-2	R	16677.66

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER	GRUP	TYPE	ORIGINAL OD	ORIGINAL WT	JNT	MEM	CHORD LEN.	GAP	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD	REQUIRED WT
ID	ID			(IN)	(IN)	TYP	TYP	(FT)	(IN)								(IN)	(IN)
204X	204X-207X	V13	TUB	16.00	0.625	Y	BRC	22.32		3.68	2.87	2.78	2.55	.35774-4	L	559064.1		

204X 204X-206X V22 TUB   20.00 0.875 Y   CHD 22.32   5.18 5.03 2.50 3.66   .37289-3 L   53635.70

204X 20C5-204X V13 TUB   16.00 0.625 Y   BRC 22.32   3.48 2.89 2.78 2.54   .10087-3 TR 198279.9

204X 205X-204X V22 TUB   20.00 0.875 Y   CHD 22.32   4.73 5.04 2.50 3.59   .90689-3 R   22053.46

2B01 2B01-2P08 BL1 TUB   20.00 0.875 Y   BRC 74.88   4.16 10.14 3.25 7.29   .76187-3 TR 26251.17

2B01 2B01-2P01 L04 TUB   40.00 1.125 Y   CHD 74.88   8.43 14.26 3.72 9.67   .37535-2 TR 5328.382

2B02 2B02-2P09 BL1 TUB   20.00 0.875 Y   BRC 74.88   4.16 10.14 3.25 7.29   .39063-3 TL 51199.48

2B02 2B02-2P02 L04 TUB   40.00 1.125 Y   CHD 74.88   8.43 14.26 3.72 9.67   .20243-2 TL 9880.146

2B03 1401-2B03 BL1 TUB   20.00 0.875 Y   BRC 74.67   3.97 8.78 2.80 6.06   .55097-3 TR 36299.49

2B03 2P13-2B03 L05 TUB   40.00 1.375 Y   CHD 74.67   7.00 9.78 2.87 7.14   .21168-2 L   9448.034

2B04 1402-2B04 BL1 TUB   20.00 0.875 Y   BRC 74.67   3.97 8.78 2.80 6.06   .35077-3 TR 57017.99

2B04 2P15-2B04 L05 TUB   40.00 1.375 Y   CHD 74.67   7.00 9.78 2.87 7.14   .10434-2 TR 19168.83

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE ID	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	* STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
301L	301L- 305	C01	TUB	16.00	0.750	K	BRC	41.47	-5.27	3.47	4.94	2.77	5.71	.28619-2	L	6988.362		
301L	301L-401L	L06	TUB	40.00	1.375	K	CHD	41.47		3.52	4.75	2.78	5.85	.56353-2	L	3549.035		
301L	301L- 315	C01	TUB	16.00	0.750	Y	BRC	41.47		3.03	7.56	2.66	4.95	.12412-2	L	16113.84		
301L	301L-401L	L06	TUB	40.00	1.375	Y	CHD	41.47		3.99	7.84	2.50	5.07	.30583-2	L	6539.562		
301L	20C4-301L	V12	TUB	20.00	0.625	K	BRC	41.47	-5.27	2.64	3.10	2.88	4.41	.35022-2	R	5710.684		
301L	2B03-301L	L06	TUB	40.00	1.375	K	CHD	41.47		2.73	3.31	2.50	4.33	.90758-2	R	2203.664		
302L	345-302L	C01	TUB	16.00	0.750	T	BRC	41.47		3.03	7.72	2.66	5.03	.91435-4	L	218735.0		
302L	302L-402L	L06	TUB	40.00	1.375	T	CHD	41.47		4.00	7.94	2.50	5.15	.22162-3	L	90243.47		
302L	302L- 349	C01	TUB	16.00	0.750	K	BRC	41.47	-0.75	3.70	5.26	2.77	5.43	.15237-2	R	13126.31		
302L	302L-402L	L06	TUB	40.00	1.375	K	CHD	41.47		3.92	5.24	2.76	5.57	.32321-2	TR	6187.833		
302L	206X-302L	V12	TUB	20.00	0.625	K	BRC	41.47	-0.75	2.72	3.21	2.88	4.47	.20369-2	R	9818.911		
302L	2B04-302L	L06	TUB	40.00	1.375	K	CHD	41.47		2.78	3.35	2.50	4.39	.50132-2	R	3989.450		

JOINT	MEMBER	GRUP ID	TYPE ID	ORIGINAL OD (IN)	WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	WT (IN)
303L	343-303L	C01	TUB	16.00	0.750	K	BRC	40.94	-2.14	3.82	4.67	2.79	5.62	.14662-2	T	13640.82		
303L	2P16-303L	L06	TUB	40.00	1.375	K	CHD	40.94		3.80	4.52	2.84	5.76	.29935-2	T	6681.117		

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER	GRUP ID	TYPE ID	ORIGINAL OD (IN)	WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	WT (IN)
303L	344-303L	C01	TUB	16.00	0.750	T	BRC	40.94		3.02	7.77	2.66	5.06	.43059-3	T	46448.15		
303L	2P16-303L	L06	TUB	40.00	1.375	T	CHD	40.94		3.98	7.97	2.50	5.18	.75138-3	T	26617.58		
303L	303L-P030	RP0	TUB	12.75	0.750	T	BRC	40.94		3.13	7.36	2.56	4.30	.18190-4	R	1099486.		
303L	2P16-303L	L06	TUB	40.00	1.375	T	CHD	40.94		3.95	7.38	2.50	4.21	.35240-4	R	567544.8		
303L	303L-P126	RP0	TUB	12.75	0.750	T	BRC	40.94		3.13	7.36	2.56	4.30	.13804-4	L	1448854.		
303L	2P16-303L	L06	TUB	40.00	1.375	T	CHD	40.94		3.95	7.38	2.50	4.21	.26588-4	L	752230.1		
303L	203X-303L	V12	TUB	20.00	0.625	K	BRC	40.94	-2.14	2.58	2.80	2.94	4.43	.59067-3	L	33859.73		
303L	2P16-303L	L06	TUB	40.00	1.375	K	CHD	40.94		2.62	2.92	2.50	4.35	.15570-2	L	12845.62		

M031 M031-M046 A02 TUB 8.62 0.625 K BRC 43.63 -0.72 3.86 3.47 2.54 3.34 .47539-6 R 42071.+3

M031 M030-M031 A11 TUB 16.00 1.000 K CHD 43.63 5.31 4.33 2.50 3.86 .22464-5 R 8902980.

M031 M031-M047 A02 TUB 8.62 0.625 K BRC 43.63 -0.72 3.85 3.46 2.54 3.35 .68465-6 L 29212.+3

M031 M031-M032 A11 TUB 16.00 1.000 K CHD 43.63 5.24 4.29 2.50 3.88 .31893-5 L 6270932.

M031 201L-M031 V01 TUB 16.00 0.625 K BRC 43.58 -9.69 2.59 2.50 2.77 3.33 .53756-3 TL 37204.91

M031 M030-M031 A11 TUB 16.00 1.000 K CHD 43.58 2.71 2.50 2.50 4.76 .10658-2 TL 18765.90

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
M031	M031-202L	V01	TUB	16.00	0.625	K	BRC	43.58	-9.69	2.75	2.52	2.77	3.31	.58426-3	T	34231.18		
M031	M031-M032	A11	TUB	16.00	1.000	K	CHD	43.58		3.02	2.50	2.50	4.70	.94979-3	T	21057.33		
M112	M100-M112	A02	TUB	8.62	0.625	K	BRC	28.36	-0.69	3.95	3.95	2.51	3.00	.55738-6	R	35882.+3		
M112	M106-M112	A11	TUB	16.00	1.000	K	CHD	28.36		5.40	4.95	2.50	3.47	.21636-5	R	9243759.		

M112	M112-M113	A02	TUB	8.62	0.625	K	BRC	28.36	-0.69	3.78	3.79	2.52	3.11	.59182-6	L	33794.+3
M112	M112-M124	A11	TUB	16.00	1.000	K	CHD	28.36		5.04	4.64	2.50	3.60	.22285-5	L	8974473.
M112	203L-M112	V01	TUB	16.00	0.625	K	BRC	28.40	-9.68	2.55	2.50	2.81	3.29	.45479-2	TR	4397.665
M112	M112-M124	A11	TUB	16.00	1.000	K	CHD	28.40		2.61	2.50	2.50	4.70	.88234-2	TR	2266.696
M112	M112-201L	V01	TUB	16.00	0.625	K	BRC	28.20	-9.68	2.62	2.58	2.75	3.33	.34534-2	T	5791.341
M112	M106-M112	A11	TUB	16.00	1.000	K	CHD	28.20		2.60	2.50	2.50	4.77	.53875-2	T	3712.329
M119	M101-M119	A02	TUB	8.62	0.625	K	BRC	28.36	-0.72	3.85	3.87	2.52	3.06	.14507-5	L	13787.+3
M119	M107-M119	A11	TUB	16.00	1.000	K	CHD	28.36		5.21	4.79	2.50	3.55	.55187-5	L	3624072.
M119	M118-M119	A02	TUB	8.62	0.625	K	BRC	28.36	-0.72	3.69	3.70	2.52	3.16	.12235-5	R	16347.+3
M119	M119-M125	A11	TUB	16.00	1.000	K	CHD	28.36		4.87	4.50	2.50	3.65	.46814-5	R	4272182

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER	GRUP	TYPE	ORIGINAL OD	ORIGINAL WT	JNT	MEM	CHORD LEN.	GAP *	STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD	REQUIRED WT
	ID	ID		(IN)	(IN)	TYP	TYP	(FT)	(IN)								(IN)	(IN)
M119	202L-M119	V01	TUB	16.00	0.625	K	BRC	28.21	-9.68	2.63	2.57	2.74	3.33	.11292-2	T	17710.97		

M119	M107-M119	A11	TUB	16.00	1.000	K	CHD	28.21		2.63	2.50	2.50	4.76	.17863-2	TR	11196.62
M119	M119-203L	V01	TUB	16.00	0.625	K	BRC	28.40	-9.68	2.59	2.50	2.81	3.28	.15555-2	TL	12857.24
M119	M119-M125	A11	TUB	16.00	1.000	K	CHD	28.40		2.70	2.50	2.50	4.67	.30068-2	TL	6651.668
P001	207X-P001	V23	TUB	16.00	0.875					2.50	2.50	2.50	2.50	.14720-5	TR	13587.+3
P001	P001-209X	V23	TUB	16.00	0.875					2.50	2.50	2.50	2.50	.14720-5	TR	13587.+3
P011	209X-P011	V13	TUB	16.00	0.625					2.50	2.50	2.50	2.50	.18062-6	BL	11073.+4
P011	P011-P018	V13	TUB	16.00	0.625					2.50	2.50	2.50	2.50	.18062-6	BL	11073.+4
P018	350-P018	C02	TUB	8.62	0.750	K	BRC	30.51	-0.97	2.83	3.09	2.57	3.77	.56445-3	L	35432.80
P018	324-P018	C11	TUB	16.00	1.125	K	CHD	30.51		3.00	3.46	2.50	4.53	.19582-2	L	10213.61
P018	356-P018	C02	TUB	8.62	0.750	K	BRC	30.54	-0.97	2.82	3.07	2.58	3.68	.44801-2	R	4464.178
P018	P018- 330	C11	TUB	16.00	1.125	K	CHD	30.54		3.05	3.53	2.50	4.41	.0180323	R	1109.118
P018	P018-P026	RP0	TUB	12.75	0.750	T	BRC	30.34		2.85	5.11	2.50	3.18	.71992-5	BL	2778085.

JOINT	MEMBER	GRUP ID	TYPE ID	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	* STRESS CONC. FACTORS * AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
P018	324-P018	C11	TUB	16.00	1.125	T	CHD	30.34		3.01	6.97	2.50	4.38	.25004-4	BL	799882.9		
P018	P011-P018	V13	TUB	16.00	0.625	T	BRC	30.34		5.54	2.50	2.50	2.50	.28134-4	L	710878.6		
P018	324-P018	C11	TUB	16.00	1.125	T	CHD	30.34		9.93	2.50	2.50	2.89	.11737-3	L	170404.0		
P101	208X-P101	V23	TUB	16.00	0.875					2.50	2.50	2.50	2.50	.30439-5	BR	6570502.		
P101	P101-210X	V23	TUB	16.00	0.875					2.50	2.50	2.50	2.50	.30439-5	BR	6570502.		
P111	P112-P111	RP3	TUB	8.62	0.250	T	BRC	10.44		2.93	4.00	2.50	2.95	.26168-5	B	7642788.		
P111	P111-P127	RP0	TUB	12.75	0.750	T	CHD	10.44		2.50	2.63	2.50	2.64	.31337-5	B	6382324.		
P118	321-P118	C02	TUB	8.62	0.750	K	BRC	30.51	-0.97	2.78	3.06	2.57	3.79	.70097-3	R	28531.74		
P118	323-P118	C11	TUB	16.00	1.125	K	CHD	30.51		2.87	3.41	2.50	4.54	.26532-2	R	7538.135		
P118	P118- 325	C02	TUB	8.62	0.750	K	BRC	30.54	-0.97	2.84	3.04	2.58	3.70	.0257507	L	776.6781		
P118	P118- 329	C11	TUB	16.00	1.125	K	CHD	30.54		3.11	3.48	2.50	4.43	.0895306	L	223.3873		

P118 P118-P127 RP0 TUB 12.75 0.750 T BRC 30.34 3.36 5.00 2.50 3.27 .79635-5 BR 2511460.

P118 323-P118 C11 TUB 16.00 1.125 T CHD 30.34 4.33 6.48 2.50 4.50 .32912-4 BR 607684.0

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
P118	210X-P118	V13	TUB	16.00	0.625 T	BRC		30.34		5.54	2.50	2.50	2.50	.44141-4	TR	453090.8		
P118	323-P118	C11	TUB	16.00	1.125 T	CHD		30.34		9.93	2.50	2.50	2.89	.18641-3	TR	107292.2		

SN Curve WJ2

* * * M E M B E R F A T I G U E R E P O R T * * *

(JOINT ORDER)

JOINT	MEMBER ID	GRUP ID	TYPE	ORIGINAL OD (IN)	ORIGINAL WT (IN)	JNT TYP	MEM TYP	CHORD LEN. (FT)	GAP (IN)	STRESS CONC. FACTORS AX-CR	AX-SD	IN-PL	OU-PL	FATIGUE RESULTS DAMAGE	LOC	SVC LIFE	REQUIRED OD (IN)	REQUIRED WT (IN)
103L	M176-103L	A01	TUB	16.00	0.750 T	BRC		43.86		3.07	8.83	2.85	5.78	.0170761	L	1171.226		
103L	003L-103L	L00	TUB	40.00	1.250 T	CHD		43.86		4.59	9.73	2.83	6.27	.0397644	L	502.9627		
103L	M177-103L	A01	TUB	16.00	0.750 T	BRC		43.86		3.07	8.83	2.85	5.78	.58338-2	R	3428.293		

```
103L 003L-103L L00  TUB   40.00  1.250 T   CHD  43.86        4.59  9.73  2.83  6.27   .0138044  R   1448.816
```

C.9 Fatigue Result Transition Butt Weld Connection (Joint Order)

* * * I N T E R M E D I A T E M E M B E R F A T I G U E R E P O R T * * *

MEMBER	GRUP	DISTANCE FROM END FT	OUTSIDE DIAMETER IN	WALL THICK. IN	STRESS. CONC. FACTORS AXIAL	BENDING	** FATIGUE RESULTS ** DAMAGE	LOC	SVC LIFE
101L- 101	L01	2.000	40.000	1.250	2.500	2.500	.88757-9	R	22533.+6
		2.000	40.000	1.000	2.500	2.500	.19044-8	R	10502.+6
102L- 102	L01	2.000	40.000	1.250	2.500	2.500	.30894-9	R	64737.+6
		2.000	40.000	1.000	2.500	2.500	.66298-9	R	30167.+6
103L- 103	L01	2.000	40.000	1.250	2.500	2.500	.22387-9	R	89337.+6
		2.000	40.000	1.000	2.500	2.500	.47239-9	R	42338.+6
101-201L	L02	27.941	40.000	1.000	2.500	2.500	.63682-7	T	31406.+4
		27.941	40.000	1.250	2.500	2.500	.30213-7	T	66197.+4
102-202L	L02	27.941	40.000	1.000	2.500	2.500	.83791-7	TR	23869.+4
		27.941	40.000	1.250	2.500	2.500	.39790-7	TR	50264.+4
103-203L	L02	27.500	40.000	1.000	2.500	2.500	.79182-8	L	25258.+5
		27.500	40.000	1.250	2.500	2.500	.37688-8	L	53067.+5
201L-20C1	L03	5.000	40.000	1.250	2.500	2.500	.67132-4	L	297920.5
		5.000	40.000	1.000	2.500	2.500	.14882-3	L	134388.3
202L-20C2	L03	5.000	40.000	1.250	2.500	2.500	.24997-4	L	800084.6
		5.000	40.000	1.000	2.500	2.500	.55459-4	L	360625.3
203L-20C3	L03	5.000	40.000	1.250	2.500	2.500	.24366-4	L	820831.6
		5.000	40.000	1.000	2.500	2.500	.53976-4	L	370535.8

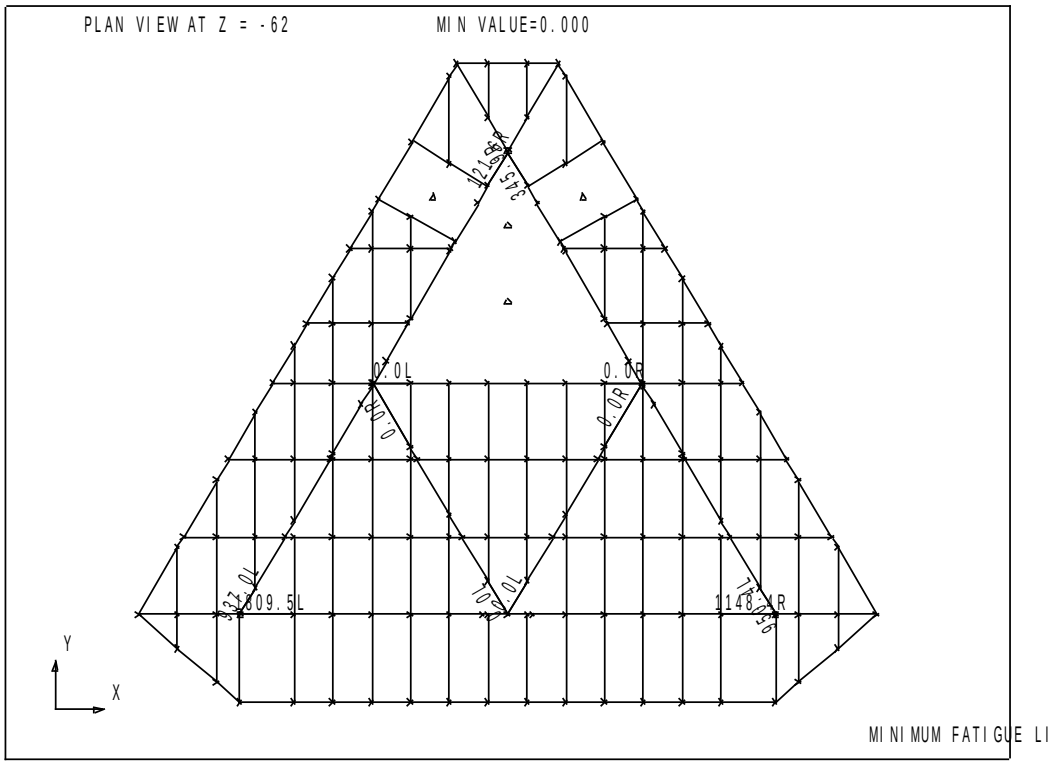
2P13-2B03	L05	1.048	40.000	1.125	2.500	2.500	.18343-3	BL	109033.7
		1.048	40.000	1.375	2.500	2.500	.91049-4	BL	219661.5
2P15-2B04	L05	1.048	40.000	1.125	2.500	2.500	.90603-4	TL	220742.5
		1.048	40.000	1.375	2.500	2.500	.44976-4	TL	444684.2

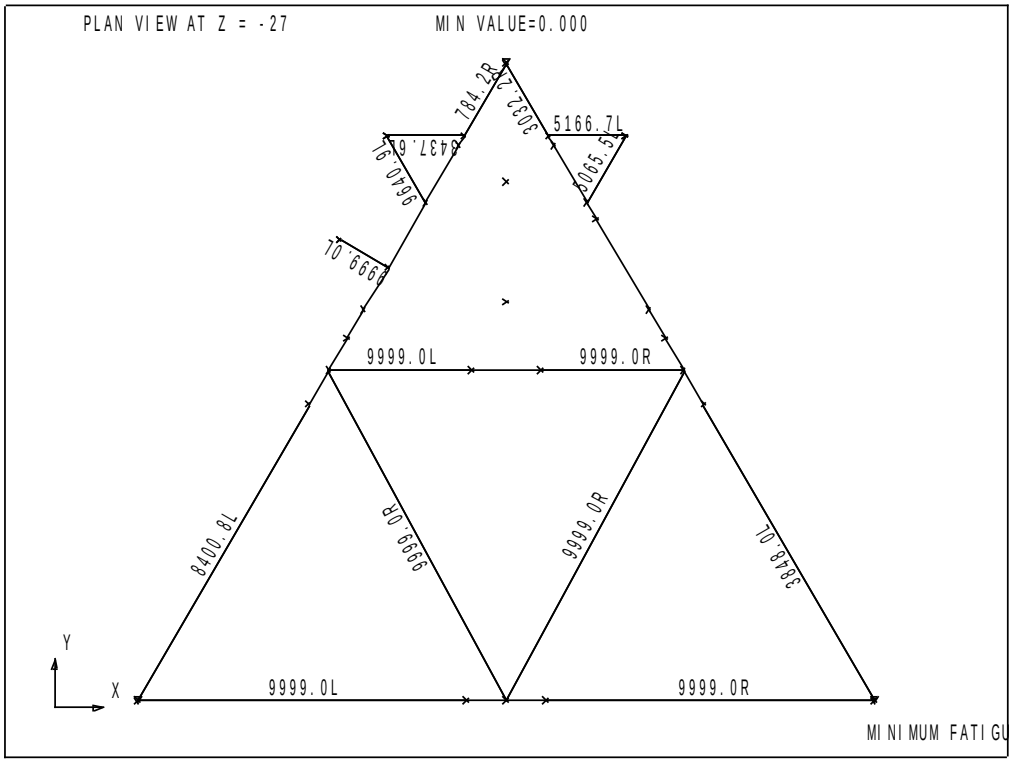
LAMPIRAN D. SACS Output Plot

D.1 Tubular Joint Fatigue Life Plot

SN Curve WJT

.

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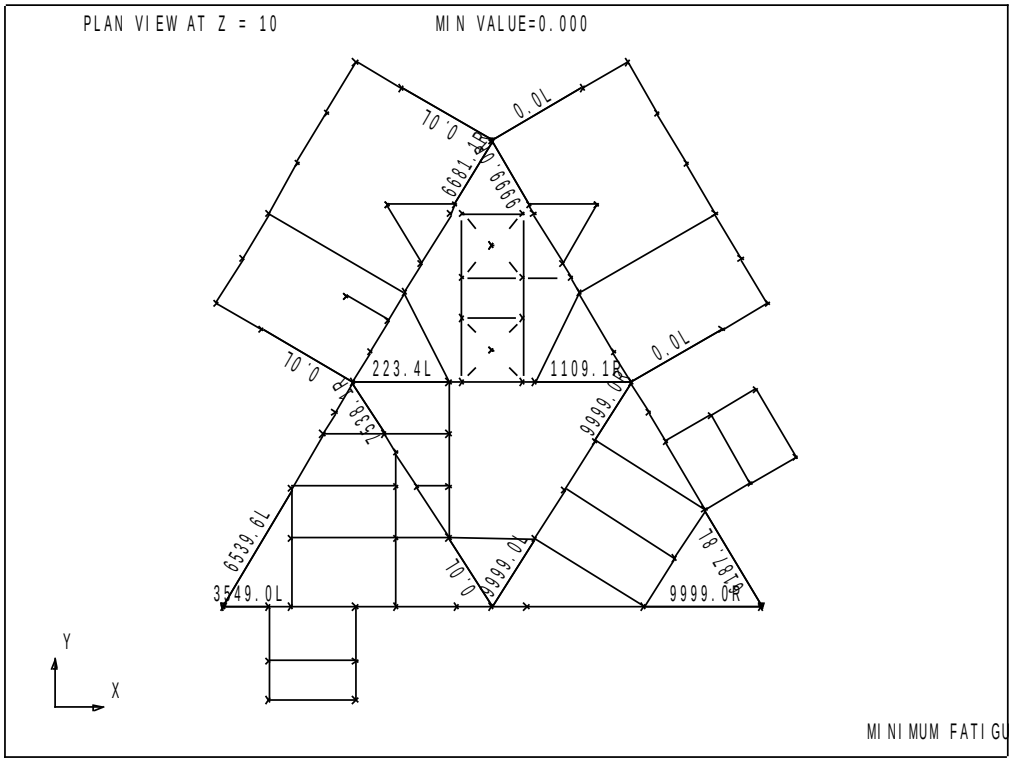
9999.0R
8400.8L
9999.0R
9999.0R
3848.0L
Y
X
9999.0L
9999.0R
MINIMUM FATIGUE LI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70.0L
223.4L
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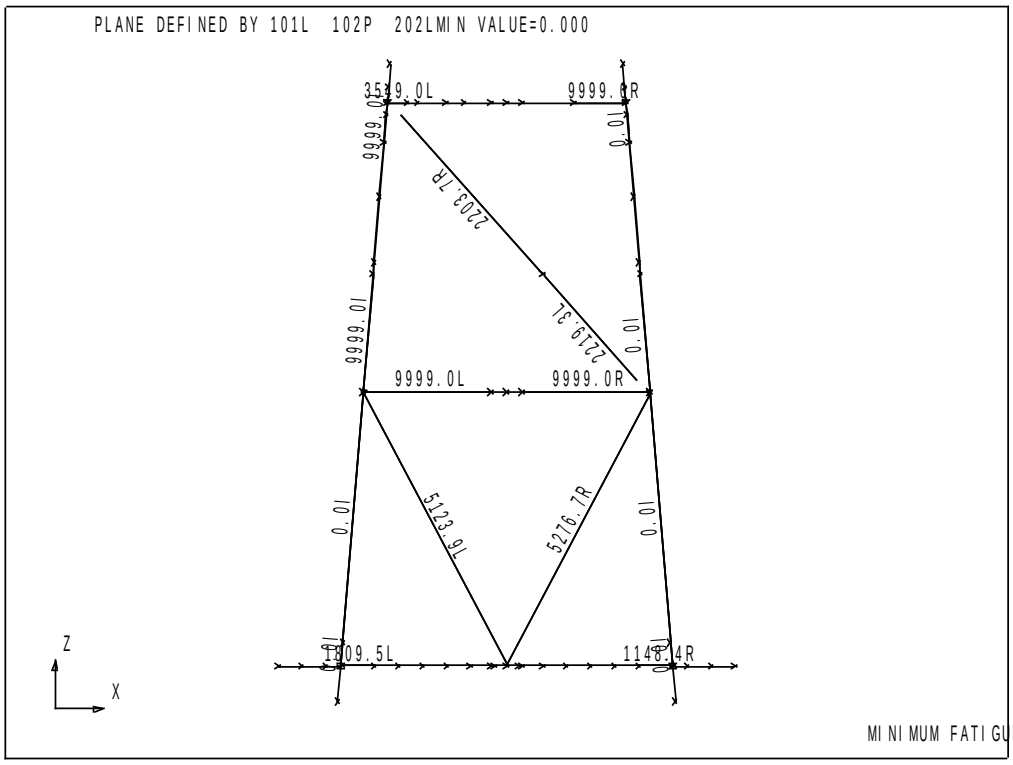
0.0L
7238.7R
9999.0R
6539.7L
70.0L
9999.0L
9187.8L
3549.0L
9999.0R
Y
X
MINIMUM FATIGUE LI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9999.0
0.01
2203.7R
9999.01
2219.3L
0.01
9999.0L
9999.0R
0.01
5123.9L
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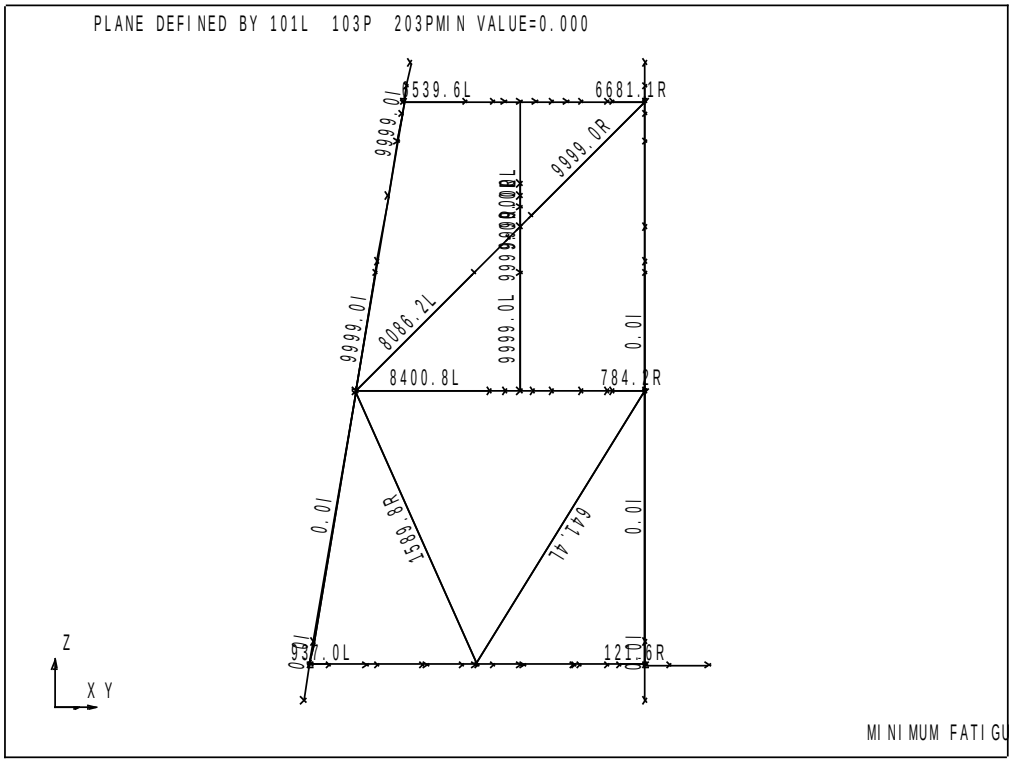
0.01
1809.5L
1148.4R
Z
X
MINIMUM FATIGUE LI


PLANE DEFINED BY 101L 103P 203PMIN VALUE=0.000
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6681.1R
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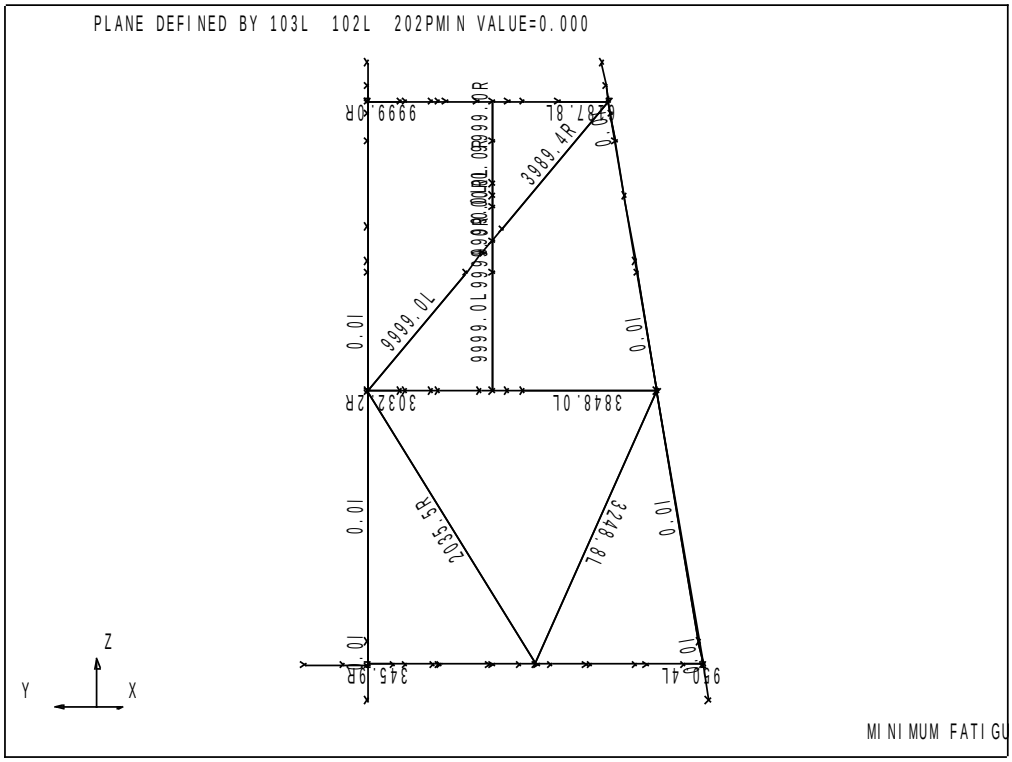
10.6666
8086.2L
8400.8L
784.2R
10.0
10.0
1589.8L
641.4L
10.0
937.0L
121.6R
Z
X Y
MINIMUM FATIGUE LI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10.0
3032.2R
3848.0L
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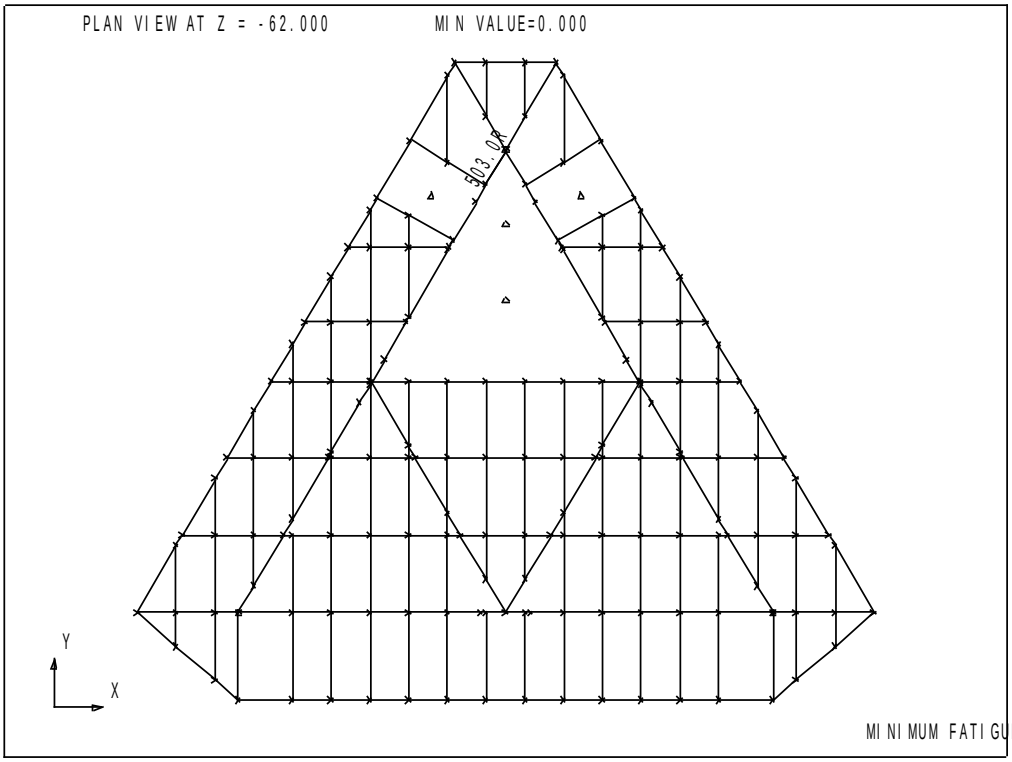
10.0
10.0
345.9R
990.4L
Z
Y
X
MINIMUM FATIGUE LI

SN Curve WJ2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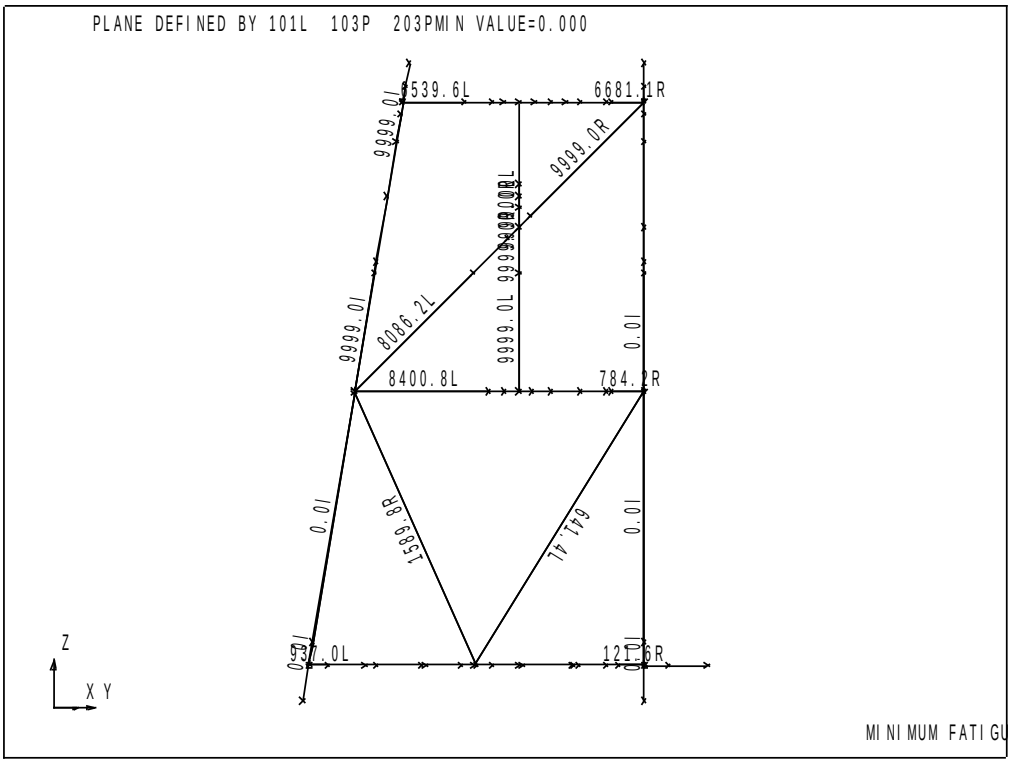
Y
X
MINIMUM FATIGUE LI

D.2 Joint Transition Butt Weld Plot



LAMPIRAN E. Perhitungan Fatigue Life

E DAFTAR TABEL JUMLAH *CYCLE*

2c (mm)	a_0 (mm)	a_f (mm)	a avg	ΔK (Mpa√mm)	Δa/ΔN	ΔN
3.33	0.5	1	0.75	0.80	1.82026E-10	2746866576
6.67	1	1.5	1.25	0.81	1.88967E-10	2645971547
10.00	1.5	2	1.75	1.07	4.36907E-10	1144409180
13.34	2	2.5	2.25	1.21	6.43047E-10	777547835.6
16.67	2.5	3	2.75	1.28	7.60888E-10	657126648
20.01	3	3.5	3.25	1.40	9.80801E-10	509787519.3
23.34	3.5	4	3.75	1.45	1.10509E-09	452451257.8
26.68	4	4.5	4.25	1.49	1.19086E-09	419864057.4
30.01	4.5	5	4.75	1.52	1.25595E-09	398104491.8
33.35	5	5.5	5.25	1.74	1.88561E-09	265166159
36.68	5.5	6	5.75	1.86	2.31655E-09	215838379.1
40.02	6	6.5	6.25	1.93	2.60149E-09	192197302.1
43.35	6.5	7	6.75	2.04	3.04132E-09	164402204.6
46.69	7	7.5	7.25	2.11	3.39787E-09	147151093.6
50.02	7.5	8	7.75	2.20	3.81588E-09	131031292.2
53.36	8	8.5	8.25	2.28	4.28559E-09	116670095.5
56.69	8.5	9	8.75	2.43	5.14438E-09	97193479.45
60.03	9	9.5	9.25	2.44	5.2511E-09	95218063.29
63.36	9.5	10	9.75	2.55	5.99273E-09	83434363.82
66.70	10	10.5	10.25	2.60	6.32736E-09	79021898.55
70.03	10.5	11	10.75	2.82	8.04468E-09	62152863.31
73.37	11	11.5	11.25	2.90	8.7498E-09	57144171.22

2c (mm)	a_0 (mm)	a_f (mm)	a avg	ΔK (Mpa√mm)	Δa/ΔN	ΔN
76.70	11.5	12	11.75	3.12	1.08987E-08	45877150.47
80.04	12	12.5	12.25	3.22	1.20564E-08	41471700.69
83.37	12.5	13	12.75	3.31	1.30553E-08	38298654.99
86.71	13	13.5	13.25	3.51	1.55234E-08	32209504.83
90.04	13.5	14	13.75	3.73	1.86322E-08	26835263.07
93.38	14	14.5	14.25	4.12	2.51764E-08	19859845.04
96.71	14.5	15	14.75	4.59	3.48129E-08	14362480.33
100.05	15	15.5	15.25	4.88	4.18371E-08	11951104.33
103.38	15.5	16	15.75	5.53	6.07704E-08	8227685.623
106.72	16	16.5	16.25	6.19	8.55216E-08	5846475.563
110.05	16.5	17	16.75	6.42	9.5111E-08	5257013.184
113.39	17	17.5	17.25	6.82	1.14365E-07	4371975.703
116.72	17.5	18	17.75	7.18	1.33253E-07	3752270.775
120.06	18	18.5	18.25	7.40	1.46078E-07	3422832.067
123.39	18.5	19	18.75	7.81	1.71497E-07	2915509.104
126.73	19	19.5	19.25	8.20	1.98492E-07	2518987.117
130.06	19.5	20	19.75	8.35	2.09837E-07	2382802.613
133.40	20	20.5	20.25	8.48	2.19528E-07	2277613.072
136.73	20.5	21	20.75	8.77	2.42829E-07	2059058.68
140.07	21	21.5	21.25	8.91	2.5436E-07	1965721.131
143.40	21.5	22	21.75	9.07	2.68611E-07	1861425.428
146.74	22	22.5	22.25	9.66	3.2485E-07	1539170.112
150.07	22.5	23	22.75	9.73	3.31961E-07	1506200.243
153.41	23	23.5	23.25	10.31	3.94911E-07	1266106.795

2c (mm)	a_0 (mm)	a_f (mm)	a avg	ΔK (Mpa√mm)	Δa/ΔN	ΔN
156.74	23.5	24	23.75	10.12	3.73485E-07	1338742.01
160.08	24	24.5	24.25	10.64	4.34046E-07	1151952.342
163.41	24.5	25	24.75	10.75	4.47643E-07	1116961.435
166.75	25	25.5	25.25	11.14	4.97242E-07	1005545.764
170.08	25.5	26	25.75	11.39	5.32421E-07	939107.0321
173.42	26	26.5	26.25	11.89	6.0462E-07	826965.2325
176.75	26.5	27	26.75	11.99	6.20009E-07	806440.2926
180.09	27	27.5	27.25	12.16	6.47296E-07	772443.5992
183.42	27.5	28	27.75	12.66	7.30472E-07	684488.8633
186.76	28	28.5	28.25	12.88	7.69817E-07	649505.4102
190.09	28.5	29	28.75	13.05	7.99468E-07	625415.7353
193.43	29	29.5	29.25	13.54	8.94292E-07	559101.6845
196.76	29.5	30	29.75	13.80	9.45421E-07	528865.1972
200.10	30	30.5	30.25	14.09	1.00773E-06	496165.2358
203.43	30.5	31	30.75	14.12	1.01418E-06	493010.1672
206.77	31	31.5	31.25	14.53	1.10509E-06	452451.2578
210.10	31.5	32	31.75	14.98	1.21095E-06	412897.4298
213.44	32	32.5	32.25	19.97	2.86562E-06	174482.0682
216.77	32.5	33	32.75	20.69	3.19002E-06	156738.6648
					N=	11753978309

BIODATA PENULIS

Erick Epafras Hadi Saputro, anak ketiga dari tiga bersaudara, lahir di Singaraja pada tanggal 3 Februari 1997. Pendidikan formal penulis dimulai dengan menyelesaikan jenjang Pendidikan Dasar di SD Laboratorium Undhiksa Singaraja pada tahun 2008 dan SMP Negeri 1 Singaraja pada tahun 2011. Penulis menyelesaikan Pendidikan Menengah di SMA Negeri 4 Singaraja pada tahun 2014. Setelah lulus SMA, penulis melanjutkan ke jenjang Pendidikan Tinggi Strata 1 di Departemen Teknik Kelautan, Fakultas Teknologi Kelautan, Institut Teknologi Sepuluh Nopember (ITS) Surabaya. Selama masa perkuliahan penulis melakukan banyak kegiatan baik akademis maupun non-akademis. Kegiatan yang penulis lakukan, sangatlah mendukung dalam peningkatan kemampuan secara langsung ataupun tidak langsung. Penulis pernah diberikan amanah sebagai koordinator *Gala & Awarding Night*, acara tahunan terbesar Departemen Teknik Kelautan. Penulis juga diberikan kesempatan untuk Kerja Praktek selama 2 bulan di PT. Pertamina Hulu Energi *Offshore North West Java*. Pada kegiatan Kerja Praktek tersebut, penulis menganalisa struktur milik perusahaan yang menumbuhkan kecintaan terhadap bidang analisa dan produksi bangunan lepas pantai. Selaras dengan kecintaan penulis, dalam Tugas Akhir ini penulis juga melakukan analisa umur kelelahan pada bangunan lepas pantai.

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Mobile Phone: 0812 314 5076